

# Destined for Deprivation: Human Capital Formation and Intergenerational Poverty in Nineteenth-Century England

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A model illustrates the intergenerational transmission of poverty through the effects of shocks to family income on children's general education and health and subsequently on their capacity to work and earn as adults. Evidence for 19th-century Britain shows that being fatherless, and so likely poor, had an adverse effect on children's human capital acquisition. However, policy intervention in the form of the Old Poor Law blocked the transmission of poverty and avoided permanent pauperism. Even at an early stage of development, redistribution emerges as a positive contribution to economic growth, not a luxury that poor countries can ill afford. © 2001 Academic Press

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## INTRODUCTION

Poverty traps pose a severe problem for policy makers. They suggest that poor countries with large pools of nonemployed people cannot simply work their way to prosperity (Sen, 1992; Dasgupta, 1993, 1997). One type of poverty trap, which we label "nutritional," involves combining efficiency wage theories with hysteresis effects of income shocks on physical well-being. Efficiency wage theories suggest that not only will more productive workers obtain higher incomes but also that workers in receipt of higher incomes will be more productive as their higher incomes enable them to acquire human capital, which in this context

means primarily the physical capacity to work. But the relationship between income and the physical capacity to work is probably nonlinear.<sup>1</sup> Large biological maintenance costs mean that physical capacity can remain unaffected by increases in resources at low levels of income. A temporary misfortune may push an individual below a threshold of physical well-being causing persistent impairment to the capacity to work. Any moderate improvement in circumstances cannot reverse the earlier impairment and so cannot enhance productivity (Dasgupta, 1997).<sup>2</sup> Poverty traps thus represent a process characterized by hysteresis. In this case providing the resources to enable the poor to generate sufficient energy to perform even modest amounts of labour requires significant growth and wide-scale redistribution, both very difficult in many contemporary poor countries.

But the problem of overcoming persistent poverty is not confined to low-income countries alone. There is a second kind of poverty trap whereby the consequences of temporary shocks are felt on human capital more generally and not limited to the physical capacity to work. Incorporating education and general training alongside the acquisition of health attributes into the model amplifies the consequences of shocks to income. Examples here might be the termination of an apprenticeship or leaving school and thus forgoing training opportunities.<sup>3</sup> The impact of the shock should therefore be thought of as an “irreversible disinvestment.”<sup>4</sup>

“Nutritional” and “human capital” poverty traps do not just blight the life-chances of individuals in one generation. Our emphasis is on how these mechanisms can mean that temporary shocks to income may extend beyond the individual to the transmission of poverty from one generation to the next.<sup>5</sup> Research in the life sciences has established links between mothers’ health, through the fetal environment to stature, health, and productivity in later life (Barker, 1994; Wadsworth, 1991). A recent U.K. Treasury report (1999) documents the impact of disadvantage in childhood. By just 22 months old, there is a significant differential in educational attainment between advantaged and disadvantaged children, which widens throughout life. Children brought up in poverty earn lower incomes as adults, are more likely to suffer unemployment, and, if female, to become teenage mothers (H. M. Treasury, March 1999). Thus

<sup>1</sup> This feature has occasioned some skepticism (Srinivasan, 1994).

<sup>2</sup> Note that the pool of nonemployed are not inherently the least productive workers. Instead those incapable of work have the same latent characteristics as those found working, and it is this mismatch between inherent skills and work done that creates a potential output gap and implies a jump in the growth rate if the poverty trap can be escaped.

<sup>3</sup> For an overlapping generations model emphasizing the role of education, see Barham *et al.* (1995).

<sup>4</sup> Recent theoretical work on irreversible investment can be applied symmetrically (Dixit and Pindyck, 1994).

<sup>5</sup> For a different model emphasizing similar intergenerational links in labor market participation and human capital acquisition, see Basu (1999).

through circumstances beyond the individual's control, his/her actual work capacity is persistently below that possible based on his/her innate abilities.

We combine the "nutritional" and "human capital" poverty traps in a model that investigates the dynastic nature of labor market opportunities. Empirical evidence for 19th-century Britain demonstrates the downward mobility experienced by children suffering disadvantage. However Britain was less afflicted by "nutritional" poverty traps than other European countries, such as France, where large proportions of the population were left in rural poverty with impaired capacity to work (Fogel, 1993). Downward mobility associated with irreversible disinvestment in human capital may also have been contained. We attribute to specific policy intervention, in the form of the Old Poor Law, England's 18th- and early 19th-century nascent welfare system, the mitigation of the intergenerational transmission of poverty. Limited redistribution at low levels of per capita income and intervention in skills acquisition did much to short circuit the consequences of poverty for human capital formation and limited the creation of permanent pauperism, with positive implications for both the individual and the nation. By enabling some of the most vulnerable children to evade "nutritional" and "human capital" traps and to become productive workers, timely redistribution emerges as a productive strategy, not an expensive luxury.<sup>6</sup>

We identify poor families by a key demographic variable, which is more commonly recorded historically than is family income or expenditure, female headship. How good is female headship as a proxy for poverty? Where it has been possible to correlate household type with family income, female-headed households emerge as among the poorest (Humphries, 1998; Horrell and Humphries, 1997). Historians have documented the disproportionate representation of women generally, and women with dependent children in particular, among applicants and recipients of poor relief and populations judged liable to become welfare dependent (Sharpe, 1997; Shamma, 1984; Connors, 1997). But this focus transcends the historical. Even in advanced industrial economies, households headed by women have a high risk of falling into poverty, and their children have a high risk of growing up relatively deprived (Mack and Lansley, 1984, p.189). In developing countries, the increasing incidence of female headship and its association with child poverty has led international agencies to target policies on this group (Chant, 1997).

## SECTION 1: A MODEL OF INTERGENERATIONAL POVERTY TRAPS

We model the human capital acquisition of a child as following the process

$$\Delta h_i^c = (a + (m - n)^\alpha)(Y_i^P/I) \quad \text{if } (Y_i^P/I) \geq Y^*/I,$$

where upper case letters denote household variables and lower case variables describe individuals,  $Y^P$  is income earned by adults in the household, with P

<sup>6</sup> In this respect our story is consistent with a revisionist interpretation of the Old Poor Law as an efficient institution contributing to Britain's 18th-century growth and structural change.

denoting parents,  $I$  is the number of adult-male equivalents in the household,  $h^c$  is the human capital of each child,  $m$  is the number of adults in the household, and  $n$  the number of adult workers. The parameter  $\alpha$  captures the efficiency with which the presence of an additional adult in the household translates into human capital formation on the part of children and is less than unity. Human capital acquisition follows this process provided income remains above a critical threshold level  $Y^*/I$ .

Under normal circumstances where the child remains at home the rate at which human capital grows is influenced by changes in  $m$ , the number of adults in the household. We assume that if mothers stay at home while their husbands work for wages their presence contributes to the human capital formation of offspring by means of better food preparation, improved hygiene, and the transmission of social and behavioral skills. Therefore changes in  $m$  relative to  $n$ , the number of workers in the household, will shift the rate of human capital formation of children in the household.

The loss of a father influences human capital formation in two ways. First, when a woman has to go out to work as a result of the loss of a husband, the reduction of domestic production damages the child's accumulation of human capital, a time substitution effect. Second, the woman cannot earn enough to fully compensate for the loss of income earned by the father, so there is an income effect.<sup>7</sup>

However, mother's labor market participation may not be sufficient to enable the family to survive and income may fall below the critical threshold level  $Y^*/I$ . Under these circumstances children may have to join the labor force and human capital acquisition becomes

$$\Delta h_t^c = (a + (m - n)^\alpha)(Y_t^P/I) - bh_t^c + y_t^c \quad \text{if } (Y_t^P/I) < Y^*/I,$$

where  $b$  denotes the rate at which the child's human capital acquisition is depressed when working for wages, both because of nutritional costs and permanent loss of formal training. The child's income is given by

$$y_t^c = d\beta_t h_t^c,$$

where  $d$  is a constant and  $\beta$  is a random process with  $E(\beta_t) = 1$ .

In this case the child's income can ensure survival, but human capital acquisition will be retarded to the extent that the child's share of the extra income is insufficient to offset the energy expended at work, the termination of schooling, or the acceptance of a dead-end job.<sup>8</sup> Extreme retardation of human capital

<sup>7</sup> If the mother works while the father is still present, the model implies that the child's human capital acquisition will be impaired if the adverse effect of the mother's absence from home is not fully offset by the effect of additional income brought into the household. This is a contentious but not inherently implausible assumption.

<sup>8</sup> Research for the early 20th century shows the downward social mobility of the sons of widows relative to their fathers' occupation, often occasioned by the necessity of taking a dead-end job (Treble, 1979, pp. 102–103).

acquisition leading to a noticeable intergenerational poverty trap occurs if  $b > d$ . Here irreversible disinvestment may occur on the part of the child. In this case, for all households where per capita income  $Y_t^P/I$  falls below the critical threshold  $Y^*/I$ , the human capital of children in the household will begin to fall unless a series of fortunate events, implied by the random nature of  $\beta$ , raises the effective return  $d\beta$ , per unit of human capital above the threshold  $b$ . It is not inevitable that children will end up in a poverty trap if income falls below the threshold level once. If they are fortunate they may still bounce back, but such an outcome becomes increasingly less likely as  $Y/I$  falls below  $Y^*/I$ . In an extreme case though, the loss of a husband reduces  $Y/I$  to the point where the human capital depreciation process is set in motion. The knife-edge nature of this result can be avoided if we assume that each parent's income also contains a random element and that this is given by

$$y_t^P = e\beta_t^P h_t^P,$$

where  $e$  is a constant and  $\beta$  is a random process with  $E(\beta_t) = 1$ .

Note that for each child in the family the loss of an earning adult increases the likelihood of having to go out to work to compensate for an adverse shock to the remaining parent's income. Thus even if current income is sufficient to avoid the child having to work, the latent vulnerability to reduced human capital acquisition will be increased by the loss of an adult earner. In our model total household income is given by

$$Y_t = \sum_{k=1}^n y_k^P + \sum_{j=0}^q y_j^C,$$

where the first sum is parental income and the second sum denotes the children's contribution. In our model, changes in  $n$ , the number of working adults, are exogenous, with initial states of 1 or 2. The number of children participating is  $q$  and is determined endogenously with  $\partial q/\partial n < 0$ . If the time paths of household members' earnings are not perfectly correlated, the probability of household income falling below the threshold level rises as  $n$ , the number of adult earners in the household, decreases. Older siblings who could go out to work, but do not yet do so, may provide other children with an implicit form of insurance against an adverse shock. However, this cushion is thinner and the risk of working is higher for those children who have only one parent.

The model predicts that, on average, children in one-parent families will have lower human capital accumulation and that some will end up in a poverty trap. Several conditioning variables operate, lower income, less household production time by the mother, and children's own expenditure of energy in paid work. We now turn to the empirical investigation of these effects in the early 19th-century context.

## SECTION 2: NINETEENTH-CENTURY POVERTY TRAPS

Poverty traps were empirically important in early-modern Europe. The large number of paupers, vagrants, and beggars that thronged the streets of most

European cities, as described in the historical work of Abel (1974) and depicted in the etchings of Hogarth, were not all victims of incapacitating diseases or war and accidents. Nutritional deficiencies were also widespread and, as in the Third World today, were arguably an important cause of impaired ability to work. The extent of nutritional deficiency is apparent in the short stature of all early modern populations for which measurements exist. Height is widely agreed to provide a cumulative measure of nutritional intake as it is net of claims on energy such as fighting disease, work effort, and physical maintenance (Floud *et al.*, 1990). But even within historical populations, marked differences in height by socio-economic class can be observed. Elites, such as recruits at Sandhurst, reached heights that are not markedly below modern standards, whereas boys taken into the Marine Society, a charity directed to providing poor boys with employment and training in the Royal and Merchant Navies, measured a mere 50.9 inches on average at age 13. This is a full ten inches less than London boys measured in the 1960s (Floud *et al.*, 1990). The stunted stature of impoverished groups may imply a reduced capacity for work.

On the input side, there is also evidence that nutrient availability may have limited the capacity to work. Fogel (1993) has used data on food production in England and France to argue that a substantial proportion of the population (up to 20% in France, less than 10% in England) had too little energy to perform any strenuous physical work. While Fogel's results appear robust for France, the case for England is less clear cut. As Voth (1996) has argued, to accept the hypothesis that extreme nutrient shortage existed in England is to impute a very high level of precision to the historical food balance sheets.<sup>9</sup> If the more extreme "nutritional" poverty trap did not exist in England, it was a common phenomenon in many early-modern continental European societies. But even in England the anthropometric record hints at more general poverty traps at the aggregate level through the strong association between height and social class.

We investigate the links between household resources and human capital acquisition and search for evidence of the intergenerational transmission of poverty using a unique 19th-century data set. The Marine Society was established in 1756 with the dual objectives of supplying the Navy with recruits and providing employment for poor London boys. The Society kept records of the heights and ages of recruits, their prior occupations, and their relationship to their nearest relative, whose occupation was also recorded. Here we use the subset of 7180 observations of the Marine Society data set collected between 1770 and 1861 for which the boy's socio-economic characteristics have been coded.<sup>10</sup> In particular we are concerned to see whether boys who came from female-headed households fared worse than did other boys in this generally disadvantaged

<sup>9</sup> A further reason that Fogel's interpretation of the English case is more doubtful is that he all but abstracts from the large redistributive role of the Poor Law; see Voth (1996).

<sup>10</sup> For full details of this data set, see Floud *et al.* (1990). The data set is available as ESRC study number 2134: Long-Term Changes in Nutrition, Welfare, and Productivity in Britain.

TABLE 1  
Labor Market Participation Rates and Dependency Ratios by Life-Cycle Phase

Age of man/woman:	20–29	30–34	35–39	40–44	45–49	50–59	60+
Total income (£ p.a.)							
Female-headed	16.25	20.24	20.29	25.95	45.83	31.06	20.67
Husband–wife	32.44	38.72	43.47	54.11	57.60	53.55	35.74
Adult-equivalent income (£ p.a.)							
Female-headed	5.85	8.98	7.74	6.51	8.87	8.17	6.53
Husband–wife	11.50	9.64	9.43	9.91	9.67	8.87	9.13
Number in household							
Female-headed	4.4	3.9	3.7	5.3	6.0	4.4	3.1
Husband–wife	5.0	6.8	7.2	7.9	8.1	7.4	4.5
Dependency ratio (number nonworking/number working)							
Female-headed	2.2	1.9	0.5	1.2	0.8	0.5	1.2
Husband–wife	2.3	2.8	1.9	1.5	3.3	1.9	0.7
Labor force participation rates (percentage):							
Women							
Female-headed	100	86	92	75	50	78	50
Husband–wife	37	30	28	41	39	24	39
Children							
Female-headed	11	16	48	38	60	67	56
Husband–wife	12	12	28	38	35	39	68
Sample size							
Female-headed	3	7	12	8	4	12	28
Husband–wife	73	80	63	46	43	22	23

*Source.* Household surveys 1816–1817; see text.

*Note.* Husband and wife household averages are weighted by the proportions found in each male occupation in the economy as a whole.

group. But first we cite evidence to demonstrate that female headship is a reliable proxy for low household income, poverty, and deprivation.

We use two early-19th-century household surveys from northern parishes, which provide information on 350 husband–wife households where the husband has work for comparison with the 53 female-headed households with children.<sup>11</sup> The surveys were censuses of the poor and were conducted to gauge potential claims on welfare. Thus even the households headed by men were barely independent. But they were fortunate compared to those without fathers.<sup>12</sup> Total

<sup>11</sup> The surveys were taken from two unpublished sources, “A Census of the Poor of Ashton and Haydock, 1816,” Warrington Library, Cheshire County Council, and “Tottington, Lancashire, A Survey of the Poor 1817,” Manchester Public Library. Male-headed households were first subdivided by male occupation as this characterizes employment and income patterns (see Horrell and Humphries, 1997) and then reagggregated using male occupational weights to get a picture representative of the working class. See Horrell (1996, n. 38) for the computation of the occupational weights.

<sup>12</sup> We focus on patterns by the age of the head of household, which facilitates comparisons between households over the life cycle.

income in the female-headed household fell far below that of its two-parented counterpart (Table 1). The consequences for the well-being of individuals in female-headed households can be gauged by deflating by an adult-equivalence scale (the number in the household adjusted for their relative needs).<sup>13</sup> Here again equivalent income was less than that achieved in full families. As the two-parent family was operating close to the margins of poverty and basic subsistence, it is apparent that the female-headed household must have fallen below this standard.

Consideration of the composition of household income reveals the importance of children's contributions to the fatherless household even at early life-cycle stages.<sup>14</sup> This is reflected in the intense labor market activity of members of female-headed households. In the husband-wife households two-thirds of household members did not work.<sup>15</sup> The female-headed households showed much lower dependency ratios in each age range and were unable to support even half their members in nonwork activities. Women and children were all more likely to be working; around three-quarters of the lone women worked compared with around one-third of their married counterparts, and children in female-headed households were nearly 50% more likely to be engaged in paid work than children with fathers present.<sup>16</sup> Indeed these fatherless children had an average age of starting work of 10.3 years,<sup>17</sup> whereas children from two-parent families usually started work at 11.4 years old.<sup>18</sup> Thus fatherless children were more likely to have to go out to work to help support their families, as predicted by the model in Section 1.

Early working was likely to disadvantage children's human capital accumulation. But children in fatherless households suffered other disadvantages. Work-

<sup>13</sup> Adult equivalents were calculated as: man, 1; wife, 0.9; child aged 11–14, 0.9; child 7–10, 0.75; child 4–6, 0.4; child 0–3, 0.15. These values were suggested in a U.S. study for the late-19th century as given in Higgs (1893, pp. 255–285).

<sup>14</sup> For a more detailed discussion of the sources of income in female-headed households, see Humphries (1998).

<sup>15</sup> Comparison of this sample with a larger sample of 1324 husband-wife households collected for 1787–1865 reveals this dependency ratio to be lower than those found for agricultural, mining, and trades households, similar to that found for outworkers but higher than that for factory workers' families (see Horrell and Humphries, 1992, Appendix 2). The dependency ratios here thus appear representative of those for all working-class families of the time.

<sup>16</sup> Comparison of these labor force participation rates with a larger sample suggests that married women here were less likely to participate than the 50–60% of working-class wives found working in the first half of the 19th century, but the children here exhibited a higher propensity to work, some 33% compared with 25% of all children in households over industrialization (see Horrell and Humphries, 1997, pp. 47, 53). The participation rates of women and children in the female-headed households were above both those in the husband-wife households cited here and those found for working-class families as a whole.

<sup>17</sup> This is calculated by adapting a technique to estimate mean age at marriage (Hajnal, 1953). Heuristically the procedure is a computation of the average number of years children lived as nonworkers in their families; see Horrell and Humphries (1995, n. 23) for a full description of the method.

<sup>18</sup> This age is calculated from a larger sample of children over the whole period 1787–1839; see Horrell and Humphries (1995, p. 497).



ing mothers had less time and energy to devote to the care of their children. Food expenditure was low and skewed toward more easily prepared but less nutritious items. Household budgets suggest female-headed households had a calorie availability of only 1250 per day for the woman and 830 for children, substantially below the 2000 or more considered necessary for women and children today (Horrell *et al.*, 1998). Economies made on soap and firewood made cleanliness harder to attain, and minimizing rent meant that these families were likely to be disproportionately found in the worst sections of the early industrial cities (Horrell *et al.*, 1998). Several important 19th-century diseases were linked not only to poverty but also to other circumstances characteristic of female-headed households, for example, poor housing (Hardy, 1993). Exposure to disease was increased and resistance was lowered, with detrimental consequences for health, stature, and productivity. Many illnesses, such as whooping cough and measles, if they did not kill, left their victims debilitated and susceptible to other diseases later in life (Hardy, 1993; Szreter, 1993; Mercer, 1990). Furthermore, an exhausted mother had less energy to interact with a young child, a deprivation shown to adversely affect the child's development and subsequent acquisition of human capital (Malina, 1980).

Without a father, children were in poverty with deleterious effects on human capital acquisition. Income was low, food was substandard, and exposure to disease was high. All affected physical development, an important component of human capital in 19th-century labor markets. That height was detrimentally affected by being fatherless has been demonstrated elsewhere (Horrell *et al.*, 1998). Relatively few jobs demanded literacy or numeracy; instead health and strength were key requirements often explicitly demanded in terms of sturdiness or even minimum height requirements (Lane, 1979). Taller and stronger boys were recruited to the better jobs that offered more training and so gained a labor market advantage. The stunted were confined to worse jobs, and inability to transcend this meant that early deprivation could become lifelong. Fatherless children also had to start work at early ages, which dealt a further insult to their height (Kirby, 1995; Humphries, 1997) but also curtailed opportunities for human capital development through schooling and formal training. We investigate the extent of this disadvantage using the Marine Society data.

Although the Marine Society was established to supply the Navy with recruits from the pool of unemployed poor boys, it was constrained in who it could help by the demands of the Navy: boys could not have handicaps or debilitating diseases and were supposed to meet a height requirement. Thus the boys examined here all came from the poorer sections of society, although they may have recently fallen on hard times, or indeed have become fatherless, rather than necessarily suffering persistent poverty. Furthermore this latter group was largely excluded by the health standards that prevented those who had suffered the deleterious effects of privation from being recruited into the Navy. Thus the Marine Society sample comprises a narrow social band which will militate against finding strong effects of fatherlessness.

Recruiting officers at the Society did not record whether boys came from

TABLE 2  
Distribution of Boys' Qualifications (%)

Age of boy: Parent	13		14		15		16	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Qualification:								
No qualifications or minimal (0)	65	67	60	65	51	58	45	45
Training over months, weeks, or days (3)	7	9	7	7	7	10	8	9
Employment in:								
Trade (4)	6	10	6	7	9	7	7	8
Agriculture (5)	7	3	5	4	6	4	7	5
Domestic (6)	1	2	4	3	5	3	6	5
Training or experience over period of years (7)	14	9	18	13	21	18	28	28
Literacy (8)	—	—	—	1	0	0	—	0
Number in sample	286	172	667	324	897	440	798	421

*Note.* Rank of qualifications given in parentheses: no boys had jobs requiring strength (1), only one had either a university degree or had taken a chartered examination (9), and two had previous employment in the arts (2). Only boys who had previous work experience are included.

female-headed households. They did however record the name and address of the next-of-kin or, in cases where the boy had no relative, whether he was destitute or from a workhouse.<sup>19</sup> Clearly Society boys were not so malnourished that they were rendered incapable of working (the “nutritional” poverty trap), but all came from backgrounds of varying poverty. We hypothesize that the degree of poverty will be negatively related to human capital formation where impoverishment is proxied by certain definable states, such as being fatherless.

The boy's previous occupation is coded and further categorized according to the attributes brought to the job market as indicated by the amount and quality of training required for the occupation. The same coding is used for the relative's occupation.<sup>20</sup> This information is then used to consider intergenerational human capital acquisition.

What qualifications did boys with previous labor market experience have on arrival at the Marine Society (Table 2)? At each age boys from female-headed households were less likely to have qualifications than were those with fathers. Conversely, any lengthy training or work experience, which might equate to an apprenticeship, was more likely to have been undertaken by boys with fathers, particularly in the younger age groups. By ranking the qualifications of all the boys in our sample the average qualification attainment for different groups can

<sup>19</sup> For a full discussion of the recording practices of Marine Society officers, see Horrell *et al.* (1998, p. 23).

<sup>20</sup> Only boys and relatives who had a job classified are considered in this analysis.

TABLE 3  
Average Qualification of Boys

Age	Nearest relative		Destitute
	Father	Mother	
12	3.11	1.58	2.17
13	1.85	1.59	3.02
14	2.22	1.85	2.21
15	2.69	2.23	2.87
16	3.15	3.08	2.39
17	2.77	2.76	1.53
18	3.50	1.11	1.22
Mean	2.64	2.33	2.46
Standard deviation	(2.98)	(2.88)	(2.79)
Sample size	2830	1450	480
<i>t</i> -test comparison with boys with fathers		3.26*	1.26

*Note.* Includes all boys with previous work experience aged 12 to 18.

\* Significant at the 95% level.

be compared (Table 3).<sup>21</sup> All these boys had worked prior to entry into the Marine Society, but boys growing up with a father realized higher qualifications. On average, they scored 0.31 higher than boys who named their mothers as their nearest relative. The position of boys recorded as destitute is also noteworthy. These boys came from a variety of backgrounds, workhouse, foundlings, orphans, off the streets, and vagrants, and they might be expected to be in a worse position than boys with mothers. However, their average qualification level lay between those of fathered and fatherless boys. Indeed, boys aged 15 or less were generally better qualified than similar-aged boys in both other groups, but those aged 16 and over were less well qualified. Given the composite nature of this group it would be unwise to assert definitive causes. But it is likely that younger boys were in the care of an institution, such as a workhouse, and the combined effects of training and having work provided enhanced their qualification levels. We return to this group when the operation of the Old Poor Law is examined in the next section. Older boys may have become destitute later in life and remained independent but at a cost in terms of the types of jobs they could obtain and the skills they could acquire.

Of course, factors other than parenting may influence the level of qualification reached. Younger boys were likely to have fewer qualifications, training and skill attainment may have increased over industrialization, and originating in London

<sup>21</sup> We follow Anderson's classification but attribute the highest value for those with the highest qualification and the lowest value for those who were coded as having no or minimal qualifications. Thus the ranking is: 9, university or chartered examinations; 8, literacy; 7, training over years; 6, domestic work; 5, agriculture or work with animals; 4, trade or commerce; 3, training over months, weeks, or days; 2, arts; 1, strength; 0, no qualifications or minimal.

TABLE 4  
Influences on the Qualification Level Obtained by Boys

	Dependent variable: Boy's qualification rank (0-9)			
	All boys with previous work experience	Boys with fathers only	All boys with parents	
Constant	-2.539 (0.616)*	-2.119 (0.842)*	-2.483 (0.758)*	-5.724 (1.042)*
Boy's age	0.305 (0.041)*	0.279 (0.056)*	0.304 (0.050)*	0.117 (0.065)*
Originates in London	-0.298 (0.160)**	-0.495 (0.214)*	-0.352 (0.192)**	-0.271 (0.192)
Time	0.012 (0.002)*	0.012 (0.003)*	0.036 (0.009)*	0.025 (0.009)*
Time <sup>2</sup>	—	—	-0.0003 (0.0001)*	-0.0002 (0.0001)*
Father present	0.251 (0.094)*	—	-0.471 (0.162)*	-0.427 (0.162)*
Father's qualification (rank)		0.107 (0.021)*	—	—
Father has some qualification (0, 1)			0.314 (0.167)*	0.289 (0.166)**
Father has had lengthy training (0, 1)			0.695 (0.148)*	0.699 (0.148)*
Height of boy				0.108 (0.024)*
Adj. R <sup>2</sup>	0.03	0.03	0.03	0.04
F	33.1*	21.4*	16.2*	16.8*
Sample size	4280	2375	3115	3115

*Note.* Only boys aged 12 to 18 with previous work experience and either a father or mother recorded were selected. Where parental qualifications are included in the regression the sample is restricted to those cases where both the boy and his parent had qualifications recorded.

\* Significant at 5% level or above.

\*\* Significant at 10% level.

might have offered a wider range of training opportunities. But, in addition, the socio-economic status of the nearest relative should be an important predictor of the qualification of the boy himself. Returning to the sample of boys with fathers or mothers the positive impact of having a father on qualification attainment is apparent even when controlling for other factors (Table 4). As expected, higher qualification attainment for older boys and a trend increase in skill levels are evident. Surprisingly, it was harder in London than in other areas of the country for boys to acquire human capital. This may reflect more opportunity to work for wages without prior training or skills in the capital. Of great importance though was the presence of a father. Indeed it was not just having a father that was important in determining the boy's human capital but also how well trained and qualified the father was. Considering only boys with fathers, the positive impact of parental human capital accumulation indicates a further role for intergenerational influence in attainment. The combined impact of parental state and achievement on a boy's qualifications is investigated through a series of dummy variables reflecting whether the parent had some experience and qualifications or

a lengthy training.<sup>22</sup> These demonstrate the importance of having a reasonably skilled father for a boy's human capital. However, if a boy had a father with minimal or no qualifications he may have been better off with his mother.<sup>23</sup> Possibly the lack of qualification indicates a sickly or feckless father who was a net drain on the household's resources, leaving the remainder of the family economically worse off than the fatherless. Such an interpretation is consistent with comparisons of fatherless and de facto female-headed households over this period (Humphries, 1998). Incorporating the boy's height into the analysis shows a positive and significant effect of stature on qualification attainment when other influences are controlled, thus emphasising the link between physical and human capital in early-industrial labor markets.

The intergenerational transfer of skills is perhaps better captured by considering the factors influencing the change in qualifications from nearest relative to boy. By deducting the relative's qualification ranking from that of the boy we create a variable representing the change in skills across generations, where negative values represent skill deterioration (Table 5). The strong effect of having a father in preventing intergenerational skill deterioration is clear and is made even more evident when the qualification attainment of the nearest relative is also included as a regressor.<sup>24</sup> The negative relationship with parental qualification level reflects a common aspect of these boys' experience. All the boys were presented at the Marine Society, so presumably were unable to survive adequately on their skills and abilities outside this charitable institution. Thus the boys were likely to cluster at similar qualification levels with the difference relative to parents magnified by the higher parental qualifications. Parents' qualifications pull up the level of a boy's qualification, but less so for more highly qualified fathers. Even so, having a father helped protect against intergenerational skill deterioration at each level of parental achievement.

The magnitudes of the changes are sensitive to the ranking of qualification levels. A more robust way of analyzing changes in qualifications is to assign a value of 0 to those boys who show a reduction in qualifications compared to the nearest relative and 1 otherwise. If we look at this variable categorized according to the presence or absence of a father, it is apparent that 53% of the boys who

<sup>22</sup> These variables were included for both mother and father, but only those with significant results were retained and reported in the final regressions in Table 4. The use of dummy variables is robust to problems of using the same qualification ranking for men and women despite their different occupational structures.

<sup>23</sup> The combined results of the father present, father's qualifications, and training dummy variables indicate a negative effect from having a father with no qualifications or training. The negative "father present" coefficient was largely offset if the father had some qualifications and became a positive influence on the boy's qualification attainment where the father had undergone training.

<sup>24</sup> Father's and mother's qualifications are included as a reduced-rank variable where 0 represents no qualifications or minimal, 1 some experience or qualifications, and 2 lengthy training. The interpretation of these results is robust to alternative specifications of the parental qualification variables and inclusion of cases where information on parental qualifications is not recorded.

TABLE 5  
Determinants of Intergenerational Skill Changes

Dependent variable:	Alteration in skill; boy's qualification less relative's qualification; OLS regressions		Skill level maintained; maintained/improved = 1, 0 otherwise; logit regression
Constant	-6.455 (0.980)*	-6.092 (0.075)*	-3.92 (0.644)*
Boy's age	0.247 (0.065)*	0.334 (0.052)*	0.200 (0.041)*
Originates in London	-0.883 (0.248)*	—	—
Time	0.036 (0.011)*	0.028 (0.009)*	0.039 (0.007)*
Time <sup>2</sup>	-0.0002 (0.0001)*	-0.0002 (0.0001)*	-0.0003 (0.0001)*
Father present	0.584 (0.161)*	2.257 (0.440)*	2.259 (0.334)*
Father's qualification		-3.085 (0.076)*	-1.661 (0.071)*
Mother's qualification		-1.967 (0.379)*	-0.661 (0.286)*
Adj. R <sup>2</sup>	0.02	0.36	
F	15.4*	292.0*	
χ <sup>2</sup>			904.8*
% predicted correctly			69.5%
Sample size	3115	3115	3115
Mean of dependent variable	-1.94		0.49

*Note.* Sample: boys and relatives with occupations only. Standard errors in parentheses. Parental qualifications coded as 0 = no qualifications or minimal, 1 = some qualifications and work experience, 2 = lengthy training.

\* Significant at the 5% level.

grew up with a father managed to maintain or improve qualification levels relative to their father. Of those who had only mothers, 36% managed to gain comparable qualifications to their nearest relative. The odds of seeing relative qualification levels fall are 1.8:1 for boys growing up fatherless and only 0.9:1 for those from full families.<sup>25</sup> Logit regression on this variable again reveals the importance of having a father present during the boy's formative years in avoiding an intergenerational downward drift of qualification attainment (Table 5). Thus the Marine Society data demonstrate that the chances of moving up the occupational ladder are severely curtailed by not having a father.

Analysis of this sample provides evidence that deprivation in childhood conditioned human capital acquisition, with ongoing adverse effects on labor market opportunities, which confined the child to low-paid, low-status jobs. But perhaps the effects go further; their disadvantaged labor market position implies that when these fatherless boys in turn became parents their children would be at a disadvantage in the acquisition of skilled, better-paid jobs.<sup>26</sup> Similarly, we

<sup>25</sup> A  $\chi^2$  test indicates that the change in odds is significant at the 99% level.

<sup>26</sup> Regression analysis reveals that, when other factors are controlled for, the nearest relative's qualification level often has a significant effect on a boy's height with higher qualification levels feeding into greater height attainment. Again this demonstrates the impact of parental attainment on

could speculate that when fatherless girls became mothers they handed on their deprived childhood to their offspring even before the latter were born. These processes selected children, regardless of individual merit, for a destiny of deprivation.

### SECTION 3: POOR RELIEF AND POVERTY ALLEVIATION

Although the intergenerational transmission of poverty is evident in 18th- and 19th-century data, England's unique, parochially based system of poor relief, famously described as "a welfare state in miniature" (Blaug, 1964, p. 229), played an important role in mitigating its pernicious effects. Although the evidence presented above confirms the existence of a "human capital" poverty trap, intervention seems to have prevented the widespread occurrence of the more severe "nutritional" variant.

An indication of the importance of intervention in offsetting intergenerational disadvantage by reducing the numbers in poverty can be illustrated by a hypothetical example. By analogy with unemployment stock-flow models we assume that, in each year,  $x\%$  of the "nonpoor" population suffer an adverse economic shock pushing them into poverty. At the same time,  $y\%$  of the poor succeed in escaping from poverty. The escape rate  $y$  is influenced by three factors, an "endogenous" escape rate  $z$  that simply mirrors economic factors in each year, the retention probability  $r$ , which captures the likelihood of children born to poor families remaining in poverty, and the length of each generation, denoted  $g$ , giving an annual maximum retention of  $1/g$ . If population growth in the population at large and in the poor segments of society are equal, full retention in poverty of children implies that the escape rate  $y$  is equal to  $z$ . If retention is not complete, then the escape rate  $y$  is equal to  $[(1 - r)/g] + z$ . Denoting the percentage of the population living in poverty as  $P$ , and the rest of the population as  $L (=100 - P)$  gives a "natural rate" of poverty—when the percentage in poverty is neither rising or falling—of

$$P = \frac{x}{x + y} = \frac{x}{x + z + [(1 - r)/g]}$$

from  $yP = xL = x(100 - P)$ .

A higher rate of inflow into poverty increases the natural rate, and a higher economic escape rate  $z$  reduces it. The natural poverty rate is increased with high levels of retention. The impact of rates of outflow on the proportion of the population living in poverty is particularly strong. In particular the intergenerational retention rate has a strong effect on the overall proportion of people living in poverty. Table 6 compares two hypothetical cases, labeled "England" and "France," with identical rates of  $x$  and  $z$  but different rates of retention,  $r$ . In

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human capital acquisition and provides further evidence of the intergenerational transmission of disadvantage.

TABLE 6  
Model Calculation: Poverty Traps and Proportions of Populations  
in Poverty

	"France"	"England"
Length of generation ( $g$ )	25 years	25 years
Potential intergenerational escape rate ( $1/g$ )	4%	4%
Retention rate ( $r$ )	90%	50%
Endogenous escape rate ( $z$ )	2.0%	2.0%
Outflow ( $y = z + ((1 - r)/g)$ )	2.4%	5.0%
Inflow ( $x$ )	0.5%	0.5%
Proportion living in poverty	17.2%	9.1%

"France," where only 10% of children born to poor parents escape from poverty, almost one in five citizens live in poverty in any year. If the escape probability rises to 75%, as in "England," the effective rate of outflow is almost doubled. Consequently, the proportion of the population in poverty falls to 9.1%.

The English system of relief was unique in terms of its financing, generosity, certainty, and redistributive impact. The Old Poor Law, in existence from Elizabethan times, required each parish to be responsible for the support of its poor and to levy rates on the occupiers of property to this end. The cost of redistribution was fairly low and occurred from the top to the bottom income groups.<sup>27</sup> It is difficult to get accurate figures on the number of recipients of poor relief, but an 1802 census counted some 1 million people on relief, amounting to 11% of the population of England and Wales (Blaug, 1963).<sup>28</sup> Of these people, 300,000 were children aged under 15. The cost was £4.1m in 1802 (Blaug, 1963, p. 180) or a small 2% of National Income.<sup>29</sup> Other 18th-century European countries were constrained by their lower per capita incomes, which limited the size of potential welfare provision. But European poor relief also differed in its greater reliance on voluntarism, which left the continental European poor less sure of support when in need, and in its resort to excise taxes for funding, which capped redistribution (Lindert, 1998).<sup>30</sup> Reliance on charitable donations and subsidies from local and national governments were less certain than local taxation, and in Europe much support was administered through institutions, predominantly found in towns (Solar, 1995). This had the double disadvantage of higher capital and administrative costs because support could only be obtained by

<sup>27</sup> Although occupiers of property were taxed, owners probably bore the final burden as high taxes were offset by lower rents (Blaug, 1963).

<sup>28</sup> However, this undoubtedly overestimates the extent of pauperism as double-counting occurred when people made discrete applications for relief during the year.

<sup>29</sup> Taken from Crafts (1985, p. 13).

<sup>30</sup> The Netherlands also redistributed relatively high proportions of income and again relied on government involvement in effecting redistribution (Lindert, 1998).



becoming an inmate of an institution, and it encouraged the migration of the destitute into towns, which increased urban poverty and its associated problems. But also, the removal of the poor from their local place of residence undermined effective targeting. The English system relied on detailed knowledge of recipients' circumstances, so reducing problems of moral hazard and adverse selection, while simultaneously encouraging rate payers to find work for local poor (Blaug, 1963). Clustering in towns removed this obligation, increased reliance on welfare payments, and exacerbated perpetual poverty. However, the advantages of the Old Poor Law should not blind us to its darker side. The parish was kind to its own, those who had entitlement through settlement, but those who could not demonstrate a claim on the parish were the casualties of the system, the outsiders who could be denied relief and removed.<sup>31</sup> Thus the Poor Law provided effective relief for many but not all.

Most historians have judged the general level of relief under the Old Poor Law as "by no means ungenerous."<sup>32</sup> Workhouse dietaries also testify to the apparent munificence of the Old Poor Law. In the 17th and 18th centuries, nutrient consumption in the workhouse was some 2112 to 2680 calories per adult-equivalent per day, which compared favorably with the 2109 to 2823 calories consumed by agricultural laborers and their families (Shammas, 1984). The poor were relieved at a little below the standard of their self-sufficient counterparts, a conscious strategy so that incentives were not distorted. Although incomes and nutritional intake for all were barely adequate, they were sufficient to enable the poor to work.<sup>33</sup> Consideration of food availability and hours of work that could be performed also suggests that most of Britain's adult population was capable of undertaking at least a full day of light work or 2 hours of heavy labor each working day and that redistribution through poor relief may have been important in achieving this (Voth, 1996, p. 21). For many, the Old Poor Law was an effective welfare system that did much to inhibit the realization of a destiny of deprivation.

A more detailed picture emerges from considering the operation of the Poor Law. The young, old, and sick could expect to be supported. Some, such as the chronically ill, lunatics, and orphaned children, might be maintained within the workhouse, but most destitute people received outdoor relief. Embedded within the system was a series of lifelines to lone mothers with dependant children and to orphans that helped them to escape their deprived destinies. Indeed the Old Poor Law in principle and its administrators in practice saw such help as

<sup>31</sup> The treatment of outsiders has been described as "the parochial boundaries of a selective but essentially intolerant xenophobia" (Snell and Millar, 1987, p. 412).

<sup>32</sup> The quotation is from Dorothy Marshall (1926, p. 101), but more recent work has confirmed this view in the context of specific kinds of help (see Lees, 1998; Sokoll, 1993; Snell and Millar, 1987; Thompson, 1984).

<sup>33</sup> The increased birth weight of babies in Philadelphia's almshouse hospital with length of stay of mother suggests that nutrition was provided at levels which maintained health even if, as here, this violated less eligibility (Goldin and Margo, 1989).

fundamental in the struggle against pauperism. Intervention was intended to break the cycle of deprivation and ensure that poor children grew up to become productive members of the community.

The first and obvious point was the economic support given to such families. Women with dependent children made up a high proportion of applicants for relief, and a high proportion of female-headed households with dependent children were applicants for relief.<sup>34</sup> Payments to women with dependent children occurred frequently in lists of parish pensions. Individual pensions were usually between 1/6d and 3/- but were often higher to women with several dependent children.<sup>35</sup> Thus at Ardleigh in the 1790s, when widow Death's husband died of small pox, leaving her with four small children, she was regularly provided with 4s a week (Erith, 1978). Evidence from working-class autobiographies confirms this level of support. When John Castle's father died in 1824, the parish of Coggeshall in Essex generously allowed Mrs. Castle 7s a week to raise her three boys (Burnett, 1982, pp. 272–279). John Bezer and his mother were allowed 4s a week in Spitalfields in the 1820s when his debilitated father retired to Greenwich Hospital (Vincent, 1977, pp. 160–161). Though small in absolute terms, these payments were significant when compared with potential earnings, especially of women (Marshall, 1926, p. 101).

Generous levels of parish support for poor mothers are also evident in the rare quantitative analyses, though sample sizes are invariably small. Humphries (1998, pp. 47–48) found that annual average contributions to family incomes from poor relief in a sample of both dependent and independent female-headed households were £4.21, £2.05, and £1.86 for 1787–1815, 1816–1820, and 1821–1840, respectively. For only those families receiving relief the contributions were £10 (8 families), £6.72 (18 families), and £5.82 (8 families) in the same subperiods.<sup>36</sup> Similar levels of support were also found for a small sample of families of sick and nonworking men. Before the numbers are dismissed as absurdly high, note that Snell and Millar (1987) in their investigation of support for lone mothers under the Old Poor Law found similar levels of assistance. On the basis of their admittedly small sample, on average poor mothers were receiving 3.6 shillings from the parish and perhaps up to 5.53 shillings a week if payments in kind and help with rent were included. Assuming these payments

<sup>34</sup> Sokoll's estimates for Braintree, of more than 20% and more than 33%, respectively (1993, p. 248), are representative (see also Thane, 1978; Crowther, 1981).

<sup>35</sup> This is the range of payments suggested by Eden (1797) and Marshall (1926). Wall (1994), in the absence of records of actual payments, uses a notional sum of 2s per week to impute poor relief supplements to poor households in his study of incomes at Corfe Castle in 1790. He notes that this represents the average payment made in the two Dorset parishes, Blandford and Durweston, documented by Eden (1797, Vol. 2, pp. 146–151).

<sup>36</sup> Comparison with annual earnings for male agricultural workers in low-wage counties indicates that these female-headed households were receiving between a quarter and a half of male earnings in the form of relief and, of course, had smaller families to support (Horrell and Humphries, 1992, p. 855).

were regular through the year, they would amount to annual sums of £9.36 to £13.94. Much depends here on the regularity of the payments. Erith (1978) observed that pensions were often received “week after week.” He computes widow Death’s annual subsidy at £15.18s.11d. Similarly the pensions recorded in the working-class autobiographies were regular payments for substantial periods of time and would have boosted incomes to these levels.<sup>37</sup>

As important as the fact of relief was its nature. Relief in the form of basic foodstuffs underscores the Poor Law’s interests in maintaining the physical efficiency of recipients. For instance, Bosanquet (1841) documented income and expenditure of poor households in London and noted the large quantities of bread purchased by the Parish for widows and their families. When food prices went through the roof following the bad harvest of 1795, the parish of Arleigh helped the poor to cope by distributing flour to poor families with more than one dependent child (Erith, 1978; see also Hampson, 1934).

However, the Overseers of the Poor wished to minimize the cost of supporting lone mothers and actively encouraged them to work while continuing to provide something for the children. Thus these pensions, like so many payments under the Old Poor Law, were “always given with the idea of supplementing existing resources rather than providing a complete maintenance” (Marshall, 1926, p. 101; Hampson, 1934, p. 179). John Castle’s mother, though relieved with respect to her sons’ maintenance, was expected to contribute. “My mother, to get a living went out as a nurse” (Burnett, 1982, p. 272). Similarly John Bezer’s mother supplemented their parish dole by winding cotton for 2 shillings a week (Vincent, 1977, p. 161). There are many instances of the authorities purchasing or mending spinning wheels for poor women, setting them up in small shops, or providing loans to seed other entrepreneurial activities or stock commons. The chartist, Robert Lowery, described the policy: “it had been the practice to relieve the widows with families, liberally at first, so as to enable them, with some of the club money and the aid of friends, to get into some little mode of employment, such as keeping a mangle, a child’s school or a little shop, and then the allowance was reduced or withdrawn” (1979, p. 96).<sup>38</sup>

Our model predicts that the employment of mothers with no compensating increase in income will adversely affect children’s human capital accumulation. But the overseers encouraged women to take up occupations that could be done at home or from home, so reducing the substitution of time away from children. Furthermore, by encouraging the combination of work for wages with relief, the Old Poor Law functioned to prevent the social exclusion of families on relief, to

<sup>37</sup> John Castle implies that his family’s poor relief continued until the boys started work, and we know that Mrs. Bezer received her pension for at least four months. In both these cases, however, the sons were driven to start work at relatively young ages.

<sup>38</sup> It is interesting to note that Lowery includes opening a school here as this was the strategy pursued by his own mother on the death of his seafaring father, though Lowery does not record that his mother received any poor relief in this time of family crisis.

avoid welfare dependency, and to reintegrate them into the world of work. As Lowery said, “This policy kept the home together . . . gave security to the family tie, and encouraged them to hope for better days, while to withhold relief, except they went into the [work]house, would have broken their spirits, destroyed the family bond, and rendered them incapable of struggling to maintain themselves” (1979, p. 96). That lone mothers struggled to combine the receipt of assistance toward their children’s upkeep with a claim to personal independence is poignantly illustrated by the story of Mary Edwards. Edwards fell foul of parochial authority when her parish insisted that paupers wear badges to indicate their dependent status. The overseers withheld the allowance that Edwards received for her disabled child because she did not wear the parish badge. She appealed to the Middlesex quarter sessions on the grounds that relief was purely for the child who duly displayed the sign of his obligation, and was not for the benefit of Mrs. Edwards herself, who was self-supporting. Her explanation was accepted and the overseers were ordered to pay the pension and any arrears owing (Marshall, 1926, p. 112)!

In more direct ways too the Old Poor Law intervened to shore up the health and human capital formation of children in poor households. In Tysoe in 1827, William Fessey, occasional pensioner of the parish, received a one-off payment for recruiting the children of the village for inoculation against cowpox (Ashby, 1912). In many parishes clothes and shoes were frequently purchased for the children of the poor (Marshall, 1926; Hampson, 1934; Erith, 1978; Ashby, 1912; Rowley, 1983). The activism of the overseers went even further, they “frequently made decisions in the interests of parentally deprived children and acted on them—whether in support or defiance of parents and guardians” (Snell, 1985, p. 284). Not only orphaned children but also other children considered at risk were often removed from their families and placed as boarders with the wealthier families of the community (Dunlop, 1912). While to contemporary sensibilities this seems a terrible infringement of parental rights, it was probably a sensible way of safeguarding the diet and health of the vulnerable. Boarding out poor children may have exposed some to exploitation and abuse. But as Ashby points out it maintained the children within a kind of family circle, “and it may be doubted whether they were called upon to work at an earlier age than the children of the families into which they were thrown by the bargains made on their behalf by the overseers” (Ashby, 1912, p. 137). Even Dunlop, who is negative about boarding out and anxious to distinguish it from industrial apprenticeship proper, concedes that it provided “support and training” and helped launch children into the world (Dunlop, 1912, p. 248).

The activism of the overseers could also take the form of formal apprenticeship. Indeed the origins of apprenticeship were clearly intertwined with the Elizabethan Poor Law: “although apprenticeship was adopted primarily in the interests of trade and manufactures, it was regarded by the Government with additional favor as a partial solution of the problem of pauperism” (Dunlop, 1912, p. 68). The circumstances and ages at which pauperized children could be

apprenticed were extended over time and culminated in the Poor Law of 1601 (43 Eliz. C. 2), which gave Justices of the Peace the power to apprentice the children not merely of paupers and vagrants but also of parents “over burthened with children” (Dunlop, 1912, p. 70). Although it appears that it was customary to give a small premium with parish apprentices even in the 17th century, long before premiums were paid in private apprenticeship, apprenticeship was the cheapest way of dealing with pauper children. By Charles I’s reign, Justices were required to make reports on their efforts to apprentice the children of the poor. From these returns it appears that a certain number of such children were apprenticed each year in every parish (Lane, 1996). Dunlop states, “The total number who acquired their training and start in life by this means must have been very large” (1912, p. 250). Furthermore an extensive investigation of the biographical information contained in settlement examinations suggests that those apprenticed by the parish or charity were generally taught the trade and later practiced it. Although undoubtedly there was occasional mistreatment of parish apprentices, the system generally provided training in a humane context for otherwise deprived children with parish authorities sometimes taking care to investigate the reputations of prospective masters and mistresses and to specify their responsibilities (Hampson, 1934). Thus when Kinnerley in Shropshire, from its poor law records not a particularly caring parish, apprenticed 9-year-old Robert Bright to Morgan Evans, tailor, in 1748, Bright was to serve “according to his power, Wit and Ability: and honestly, orderly, and obediently, in all things demean and behave Himself towards his said Master.” But Evans was to teach the boy “the Art, Trade and Business of a Taylor” and to “provide and allow the said Apprentice, meet, competent and sufficient Meat, Drink, Washing, Lodging and Apparel” (Rowley, 1983, p. 7). Indeed extensive legislation covered parish apprentices and at times provided greater legal protection than that available to private apprentices (Snell, 1985, p. 285).

Even those poor children consigned to the general-purpose workhouses of the Old Poor Law did not inevitably face deprivation. They benefited from the relatively good and plentiful diets noted above. More surprisingly, workhouse children often received some education, and even emotional nurture. Thus George Elson, one of the last of the boy chimney sweeps, remembered his workhouse experience with a gratitude he found puzzling. “It was not for long I remained a workhouse boy, though, with the advantages of securing at least some education, I was not dissatisfied with my lot, and have even grateful recollections of the kind treatment I experienced. Workhouse reminiscences are seldom cherished by former inmates; perhaps mine are exceptional” (Elson, 1900, pp. 13–14). Not according to Henry Price who spent much of his childhood in Warminster Workhouse, where he received a rudimentary though probably relatively decent education from a crippled but literate inmate who acted as schoolteacher. His verdict on the level of care and attention given the orphaned and fatherless is unequivocal: “Taken altogether these old Poor Houses were very good homes. We were all happy there, well-fed, nurs’d and doctor’d, went in and

out just as we pleas'd, dress'd like others. Fields and gardens all around us we fatten'd our own Pigs made our own bread, Brew'd our own Beer . . . We gather's round the fire at night. The old Soldiers sang their songs, the old salts their ditties . . ." (Price, 1904, no pagination).

The retreat of the Old Poor Law in the face of spiraling costs in the late 18th century clearly had powerful implications for the kind of family discussed above. Lone mothers and their children suffered from the hardening of policy and search for economies, especially as economic changes meant that they simultaneously became more likely to be on the relief lists (Humphries, 1998).<sup>39</sup> Poor Law administrators became more inclined to push applicants onto private charities, and the system of pauper apprenticeship degenerated (Carter, 1995). In the 1780s placements were to local or land-based conventional crafts, but in the face of rising costs the parish sought to remove pauper children to the new industrial mills. Mothers who resisted the banishment of their children were then excluded from relief (Carter, 1995; Lane, 1979). Changing demand for child labor in conjunction with pressure on poor rates created a systematic traffic in pauper apprentices between many urban centers and the early cotton factories (Rose, 1989). Within the workhouses, the liberal regimes applauded by Elson and Price were transformed according to the principle of "less eligibility" into the regimented misery and semistarvation remembered by other working-class autobiographers.<sup>40</sup> Even before the reforms of 1834, the Old Poor Law had ceased to act in a symbiotic way with the apprenticeship system to provide a supply of semiskilled labor and to breach if not overcome the barriers to social mobility embedded in deprived origins.<sup>41</sup>

An impression of the beneficial effect of the Old Poor Law in improving the human capital of fatherless and destitute children when compared with the harsher conditions of the New Poor Law can be gained by subdividing the Marine Society sample and examining the effect of parental loss under the two regimes (Table 7). The sample is divided by date of birth of the boy at 1824, rather than 1834 when the New Poor Law was implemented, because many scholars have identified a period of transition with conditions being closer to those of the new regime some years prior to the change in legislation (Carter, 1995).<sup>42</sup> Dividing the sample at an 1824 date of birth also allows that it was

<sup>39</sup> Lees shows that even widows, the most "deserving" kind of lone mother, rarely received a cash grant in the 1840s and 1850s even though legally entitled under the New Poor Law to welfare (Lees, 1998, pp. 205–210).

<sup>40</sup> See, for example, Shaw (1903, pp. 96–116). Price's unpublished Diary is remarkable for providing a personalized comparison as he experienced the advent of the New Poor Law first hand at Warminster.

<sup>41</sup> Apprenticeship as a head of settlement also distorted the operation of the system though perhaps not as much as sometimes suggested (Hampson, 1928; Emmison, 1933).

<sup>42</sup> Subdividing the sample at 1824/1825 results in approximately one-quarter of the observations being fatherless boys in each period. However, the regression results are robust to alternative periodizations. For instance, dividing the sample at 1834 again shows the increased importance of

TABLE 7  
Effect of Poor Law Regime on Boy's Qualificational Attainment

	Alteration in skill; boy's qualification less relative's qualification		Boy's qualification attainment; aged 12–15 only	
	1756–1824	1825–1847	1756–1824	1825–1847
Constant	-5.422 (0.994)*	-77.694 (25.876)*	-1.459 (1.021)	-3.291 (3.103)
Boy's age	0.314 (0.059)*	0.396 (0.123)*	0.207 (0.073)*	0.292 (0.202)
Originates in London	—	—	-0.284 (0.196)	-0.627 (0.395)
Time	0.005 (0.015)	1.762 (0.642)*	0.014 (0.003)*	0.019 (0.014)
Time <sup>2</sup>	-0.0002 (0.0002)	-0.011 (0.004)*		
Father present	2.066 (0.499)*	2.807 (0.943)*	0.292 (0.160)	0.425 (0.393)
Destitute			0.842 (0.259)*	0.781 (0.634)
Father's qualification (0, 1, 2)	-3.095 (0.090)*	-3.024 (0.144)*		
Mother's qualification (0, 1, 2)	-2.067 (0.423)*	-1.644 (0.838)*		
Father had lengthy training (0, 1)			0.578 (0.152)*	0.741 (0.278)*
Mother had some work experience (0, 1)			0.686 (0.209)*	-0.015 (0.454)
Adj. $R^2$	0.37	0.35	0.03	0.02
$F$	216.4*	79.6*	11.37*	3.36*
Sample size	2221	894	2443	670
Chow ( $F$ ) test of structural break		2.60*		1.91

*Note.* Only boys with previous work experience selected. Only parents with qualifications recorded selected in regressions on alteration in skill level, assumed to be zero if not reported in boys' qualification regressions. Standard errors in parentheses.

\* Significant at 5% level.

probably only in the years just prior to entry into the Marine Society that these boys were Poor Law recipients. Thus those born in, say, 1824 may have entered the Society at age 11 in 1835 and have been beneficiaries of the Old Poor Law, whereas those born in, say, 1830 would have entered at this age in 1841 and would likely have felt the impact of the new regime. For boys with at least one parent the increased importance of having a father in shoring up any alteration in

having a father present after 1834 although there is no longer evidence of a significant structural break, in part because the sample becomes very unevenly divided, with 90% of the sample falling into the first subperiod. A further subdivision of the sample at 1794/1795 demonstrates a significant decline in the importance of having a father present between 1756 and 1794 and between 1795 and 1833 and has a stronger positive effect in 1834–1847. Chow tests reveal both to be significant structural breaks. This is consistent with reports of increased generosity of the Poor Law toward widows and the fatherless during the Napoleonic wars and the subsequent harshening culminating in the new legislation in 1834 (see Humphries, 1998).

skill level under the New Poor Law is apparent, and a Chow test indicates a structural break in factors affecting the intergenerational transfer of skills between the two periods. The Old Poor Law regime was better at protecting the fatherless. The fate of the destitute too was more favorable under the old rules. Earlier it was suggested that workhouse boys might be given opportunities to improve their human capital to prevent them from becoming a permanent charge on the poor rates. But such advantages were less likely to be extended under the New Poor Law. Sample sizes are small, but regression analysis shows the qualification levels of destitute or workhouse boys to be similar to those whose fathers had lengthy training and above those of all other groups in the first time period. With the advent of the New Poor Law the advantageous effect on qualifications of having a father present are again more evident. In this time period, workhouse boys had lower qualification levels than boys with well-qualified fathers and there was no longer a significant, positive effect on qualifications from being in the workhouse. Boys with only a mother for support fared considerably worse under the new regime and serve as testimony to the harsher treatment of lone mothers ushered in by the legislation. On the basis of this evidence, the Old Poor Law did much to improve the human capital of those children who relied on its benevolence, but these identifiably deprived groups received less development of skills under the New Poor Law.

The poverty trap literature implies a nonlinear relationship between productivity and income, with many people remaining too feeble to work even if growth of the economy occasioned high demand for labor and significantly increased wages unless substantial redistribution was effected. We suggest that the Old Poor Law did manage to support those in most need so that perpetual destitution was not a pervasive feature of early industrial Britain. The Old Poor Law provided a complex composite of assistance, encouragement, and coercion that allowed families to survive largely through their own efforts rather than sliding into the "nutritional" poverty trap and that even enabled some to avoid the worst extreme of the "human capital" trap. Clearly this policy was preferable for the individual, but also for the nation; for little cost a considerable amount of labor power was made available. Indeed, the intense work effort of women and children in fatherless families may have been a crucial element in propelling the industrial revolution forward (Humphries, 1998).

## CONCLUSION

Evidence from Britain during industrialization demonstrates the effect that early deprivation can have on human capital acquisition and suggests that the poverty of one generation could prejudice the life chances of the next independently of individual merit. A common misfortune, the loss of a father, precipitated a slide into such destitution as would impair human capital, both physical and educational, such that a large rise in income was necessary to offset these early insults and reemerge as productive members of society. For many, such a



disastrous descent was prevented by the intervention of the Poor Law, England's precocious welfare system. The universal, but locally administered, system of relief intentionally provided just enough to enable the poor to be at least partially self-supporting workers and provided primitive but much-utilized lifelines back to the world of work and respectability. Thus a low-cost, targeted welfare system effected a redistribution of income to some 10% of the population. The rewards to this outlay were manifold; children whose destiny may have been dependence and mendacity could become productive and industrious. They contributed to national income and in many ways were at the vanguard of industrialisation (Humphries, 1998). Far from reducing work incentives, the Old Poor Law aided development by increasing productivity (Blaug, 1964). The system did have its flaws and could be cruel, but it provides an important example for those countries today faced with pervasive poverty. With poverty reduction targeted on those otherwise destined for deprivation, and linked to the delivery of nutrition and training to poor children, redistribution is not a luxury that poor countries can ill afford but a positive contribution to economic growth. Even for richer nations the historical record provides an example of the national benefits achievable from a comprehensive, but incentive-compatible, welfare system.

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