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# Childhood and child labour in the British industrial revolution<sup>1</sup>

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Quantitative and qualitative analysis of a large number of autobiographies by working men who lived through the industrial revolution has demonstrated that there was an upsurge in child labour in the late eighteenth and early nineteenth centuries with children's work entrenched in traditional sectors as well as spreading in newly mechanized factories and workshops. I have interpreted this rise in terms of the appearance of a new equilibrium in the early industrial economy with more and younger children at work. The new equilibrium, in turn, was related to a number of co-incidental developments including: an increase in the relative productivity of children as a result of mechanization, new divisions of labour, and changes in the organization of work; the dynamics of competitive dependence linking labour market and families; high dependency ratios within families; stumbling male wages and pockets of poverty; family instability; and breadwinner frailty. The establishment of these links forges a new synchronization between revised views of the industrial revolution and a revisionist history of child labour.

My recent monograph, *Childhood and child labour in the British industrial revolution*, looked at the role of child labour not as reconstructed from the standard sources with their middle-class standpoint, reformist purpose, and social control agenda, but as history from below. My interest was in how the child workers of the industrial revolution themselves understood their suffering and made sense of their labour. I considered whether children's work was only a means to survive, and if so how it related to the household economy and the challenging labour market of the era, or whether it also delivered training, or a step on a career ladder, or even an escape into new adventure. This article provides an overview of the larger work but concentrates on the causes and chronology of child labour, and in particular how it fits into broader narratives of British industrialization. To this end I integrate some elements of my history from below with a novel theoretical framework and evidence from other sources. I argue that child labour, in terms of child participation rates and younger working, increased during the classic era of industrialization, and that this influenced the pace and nature of economic change. To make this argument from the bottom up, I use working people's own accounts of their lives, weaving together the measurable dimensions of child labour with annotations about what work involved, how it felt, and why it needed to be

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1 undertaken.<sup>2</sup> I begin with some voices from the past, the reminiscences of child  
2 labour by working men of the era.

3 Robert Collyer (born 1823)

4  
5 It is told of the Younger Pitt that, in looking around for more earners and still more to  
6 meet the demands for more money and still more to carry on the war with Napoleon,  
7 the great statesman said, 'We must yoke up the children to work in the factories' . . . I  
8 cannot vouch for the story . . . but [when between seven and eight] I found myself with  
9 many children of about my age or older standing at the spinning frames . . . 13 hours a  
10 day five days a week and eleven on Saturday.<sup>3</sup>

11  
12 William Arnold (born 1860)

13  
14 When I was six years and two months old I was sent off to work. Fancy that, only just  
15 over six years of age! This was at the end of February, or early March, and I do not think  
16 I shall ever forget those long and hungry days in the fields . . . My work was about a mile  
17 from home, and I had for wages eighteen pence a week and my dinner on Sundays  
18 [which] made the Sunday the greatest and happiest day of the week . . . When the  
19 barley was up and the scaring of crows was unnecessary, I had to mind a flock of a  
20 hundred sheep . . . The sense of loneliness and responsibility frequently overcame me,  
21 and in my desperation I would shout 'Mother! Mother! Mother!' But mother could not  
22 hear: she was away that time working in the hayfield two miles away . . . Then I had the  
23 job of minding about forty pigs. Pigs are very different animals to mind from sheep.  
24 Sheep will keep together: every pig will go its own way careless of the others. The worry,  
25 the trouble, the running to and fro . . .<sup>4</sup>

26  
27 Jonathan Saville (born 1759)

28  
29 Until I was seven years old, I lived partly with my father and grandmother and partly in  
30 Horton Workhouse. I was then bound apprentice to a man . . . he turned me over to the  
31 colliers in Denholme; on which my father said to him, 'I had rather you'd tied a stone  
32 round his neck, and drowned him'. I was a fine, growing, active lad at that time. I saw  
33 some cripples in the house of my new master, and the thought came across me that I was  
34 to share the same fate with them. At first I was taught to spin worsted; but it was not long  
35 before I was taken to the Coal-pit . . .<sup>5</sup>

36  
37 John Shipp (born c. 1782)

38  
39 At the death of my poor mother . . . my brother . . . was pressed on board a man-of-  
40 war . . . I felt myself alone in the wide world . . . But the spirits of childhood, [are]  
41 buoyant and elastic . . . [and] I was naturally a wild dog, of an active and unconquerable  
42 spirit; . . . I was playing marbles in a lane called Love lane . . . [when] the shrill notes of  
43 a fife, and the hollow sound of a distant drum, struck on my active ear . . . [It was] a  
44 recruiting party of the Royal Artillery . . . The . . . fifer . . . very little exceeded that of  
45 the drum by which he stood. 'Surely' thought I to myself, sidling up to him, 'I must be  
46 myself as tall, if not taller, than this little blade, and should make as good a soldier!' . . . I  
47

48  
49 <sup>2</sup> The starting point for any historian interested in working-class autobiography has to be the bibliography by  
50 Burnett, Vincent, and Mayall, eds., *Autobiography*, completed in 1989. This bibliography lists more than a  
51 thousand documents published and unpublished from eighteenth-, nineteenth-, and twentieth-century Britain  
52 and provides an invaluable starting point for research in this area. Historians interested in the genre should also  
53 consult Vincent's pioneering monograph, *Bread, knowledge and freedom*, and Burnett's many thematic excerpted  
54 collections, such as *Destiny obscure* and *Useful toil*.

54  
55 <sup>3</sup> Collyer, *Memories*, p. 15.

55  
56 <sup>4</sup> Arnold, *Recollections*, pp. 13–14.

56  
<sup>5</sup> Saville, 'Autobiography', p. 6.

1 swallowed every word spoken by the royal sergeant . . . It was all about ‘gentlemen  
2 soldiers’, ‘merry life’, ‘muskets rattling’, ‘cannons roaring’, ‘drums beating’, ‘colours  
3 flying’, ‘regiments charging’ and shouts of ‘victory! victory!’ . . . [R]aising myself on  
4 tiptoe to appear as tall as possible, strutted up to the sergeant, and asked him, in plain  
5 words, if he would take I for a sodger?’.<sup>6</sup>

6  
7 Edward Rymer (born 1834)

8  
9 In the winter of 1844 it was found necessary that my brother John and I should go to  
10 the pit. We had neither food nor shoes nor light in our first shift . . . The wagon man,  
11 Tommy Dixon by name, visited me and cheered me on through the gloomy night; and  
12 when I wept for my mother he sang that nice little hymn:

13 In darkest shades if thou appear

14 My dawning has begun

15 And he brought me some cake and a candle . . .<sup>7</sup>

16  
17 We will return to these voices and the stories they told in the course of the article.<sup>8</sup>

18  
19 I

20  
21 Croce’s adage that all history is contemporary history, that historians bring to the  
22 past the anxieties of their day and interpret earlier periods through the frame of  
23 current interests, is well illustrated by the historiography of the industrial revolution  
24 as Cannadine argued in his well-known article.<sup>9</sup>

25 Cannadine identified four phases in the historiography of the industrial revolution.  
26 The first covered the classic descriptions produced in the early twentieth  
27 century, by Fabian and Socialist commentators preoccupied by the poverty,  
28 inequality, and negative externalities that seemed to proliferate in the industrial  
29 economy and persisted into their own times.<sup>10</sup> Child labour, not surprisingly, was  
30 to the fore in these pessimistic assessments of the socio-economic effects of  
31 industrialization. In the unstable and depressed interwar period, economic histo-  
32 rians reinterpreted the industrial revolution in terms of the business cycle and a  
33 market economy’s tendency to generate booms and busts.<sup>11</sup> When things  
34 improved, following the Second World War, the beneficiaries of this golden age of  
35 economic progress looked back on the industrial revolution as ‘the take-off’ into  
36 self-sustained growth. Their emphasis was on abrupt change in growth rates,  
37 leading sectors (cotton, iron), and a sudden shift in investment rates.<sup>12</sup> Some  
38 canonical writing from the era even sought to turn British experience into a  
39 template for economic development to guide policy in poor countries. In contrast,  
40 the end of the golden age, the failures of development economics, and the grip of  
41 stagflation introduced a fourth phase in which economic historians were converted  
42 to a new macro perspective that highlighted slow change, long roots, early devel-

43  
44  
45 <sup>6</sup> Shipp, *Memoirs*, pp.18–21.

46 <sup>7</sup> Rymer, ‘Martyrdom’, p. 3.

47 <sup>8</sup> For further detail on these authors and their subsequent life histories, see Humphries, *Childhood and child labour*.

48 <sup>9</sup> Cannadine, ‘Present and the past’.

49 <sup>10</sup> Hammond and Hammond, *Town labourer*; Webb and Webb, *Industrial democracy*; Toynbee, *Lectures*.

50 <sup>11</sup> Beveridge, *Unemployment*; Gayer, Rostow, and Schwartz, *Growth and fluctuation*; Matthews, *Study*; idem, *Trade cycle*.

51 <sup>12</sup> Rostow, *Stages*; Deane, *First industrial revolution*; Kuznets, *Economic growth*.

1 opment of non-agriculture, and the retention of traditional labour-intensive pro-  
2 duction methods, while simultaneously downplaying the role of mechanization  
3 and the cotton industry.<sup>13</sup>

4 Cannadine's survey ended in 1984, yet developments in the historiography have  
5 continued to reflect concurrent issues. New recognition of the importance of  
6 institutions has stimulated an emphasis on the contributions of the strong  
7 Hanoverian state, financial stability, the security of property rights, and develop-  
8 ment of commercial and financial architecture. Anxieties about resource con-  
9 straints have contributed to an environmentalist view of the industrial revolution  
10 as an escape from the organic economy.<sup>14</sup> In this interpretation, the possession and  
11 use of coal, a productive agriculture, and the development of the Atlantic economy  
12 appear as important drivers. Recently too, late twentieth-century concerns with  
13 consumerism have sensitized economic historians to the importance of the relative  
14 prosperity of the pre- and early industrial eras and the way in which aspirations to  
15 consume spurred work efforts in an industrious revolution that preceded and laid  
16 the groundwork for the industrial revolution.<sup>15</sup> Finally, the technological transfor-  
17 mations of our own times have encouraged readings that stress scientific advance,  
18 the application of science to production, and the ways in which innovations took  
19 root in locally profitable conditions.<sup>16</sup>

20 Successive interpretations and reinterpretations have crowded out child labour.  
21 The current conventional wisdom downplays the importance of the cotton indus-  
22 try, factories, and poverty, features of industrialization that the first wave of writers  
23 identified as promoting children's work. Today the topic is peripheral to the study  
24 of the industrial revolution.

25 Ironically, while economic historians have turned their attention away from the  
26 ways in which economic changes put strains and stresses on working families,  
27 Britain faces pressing new social problems associated with the difficulties involved  
28 in reconciling the demands of an advanced industrial economy with a stable and  
29 rewarding family life. 'Broken Britain' is the media's favourite contemporary  
30 refrain, and dysfunctional families allegedly lie at its shattered core. Relationships  
31 between the generations are strained, working parents are harried, and family time  
32 is scarce. Many children seem unhappy, neglected, even abused. One in four  
33 children in the UK comes from a fatherless family with mothers the vast majority  
34 of single parents. Lone parenthood sets the scene for child poverty; fatherlessness  
35 contributes to emotional and psychological problems, drug use, poor educational  
36 outcomes, teenage motherhood, crime, and domestic violence; 10 per cent of  
37 children self-harm, unknown thousands live rough, and 17,000 act as nurses for  
38 physically and mentally ill parents.<sup>17</sup> We do not safeguard and cherish all our  
39 children even in economically advanced modern Britain with its mature welfare  
40

41 <sup>13</sup> C. K. Harley, 'New views of the industrial revolution and labour markets', paper presented at a seminar  
42 on 'The First Modern Labour Market', Oxford (2006); idem, 'British industrialization'; Crafts, 'English eco-  
43 nomic growth'; idem, *British economic growth*; Crafts and Harley, 'Output growth'; idem, 'Precocious British  
44 industrialisation'.

45 <sup>14</sup> Wrigley, *Poverty*; idem, *Industrial growth*; idem, *Continuity*; Allen, *British industrial revolution*.

46 <sup>15</sup> de Vries, 'Purchasing power'; idem, 'Industrial revolution'; idem, 'Industrious revolution and economic  
47 growth'; idem, *Industrious revolution*.

48 <sup>16</sup> Mokyr, *Lever of riches*; idem, *Gifts of Athena*; idem, *Enlightened economy*; Allen, *British industrial revolution*.

49 <sup>17</sup> M. White, 'Britain broken or not?' *Guardian*, 1 Oct. 2008, <http://www.guardian.co.uk/politics/2008/oct/01/davidcameron.welfare> (accessed on 8 July 2009).

1 state. Looking further afield, internationally, many children's lives seem hard and  
2 hopeless in the face of chronic poverty, widespread disease, civil conflict, and  
3 horrendous natural disasters. As current concerns about children and families  
4 mount, perhaps it is time to look back at the past and reconsider childhood and  
5 child labour in this watershed era.

6 Although a small group of persistent (but unfashionable) scholars had main-  
7 tained a steady trickle of work on the economic history of childhood,<sup>18</sup> recently,  
8 consistent with the Croce/Cannadine hypothesis and mounting concern about the  
9 well-being of children, the pace of publication has increased. Historians have  
10 rediscovered child labour and offered intriguing new insight into its role during  
11 industrialization.<sup>19</sup> They have suggested that child labour spread beyond the mills  
12 and mines that dominated in the classic accounts. It was ubiquitous too in  
13 traditional industries and small-scale production units and persisted long into the  
14 nineteenth century. At the same time, child labour possessed particular strategic  
15 importance in early water-powered factories, which were built far from centres of  
16 population and so had to be worked by imported labour. Workers were found in  
17 the form of pauper apprentices, a type of child labour whose supply has been  
18 expertly reconstructed from poor law records and foundling hospital archives.<sup>20</sup>  
19 However, recent research is either mainly qualitative or confined to the mid-  
20 nineteenth century when census records come on stream or based on sources that  
21 relate exclusively to particular forms of work such as pauper apprenticeship. This  
22 leaves the chronology of child labour uncertain. The lack of quantitative data that  
23 can reach back into the eighteenth century and simultaneously relate to the  
24 mid-nineteenth-century census estimates is particularly problematic. As a result,  
25 connections back to the mainstream drama of the industrial revolution remain  
26 speculative and tenuous. Unlike factors, such as inventions and coal, which have  
27 reappeared in revamped form to reprise old roles in the new accounts of indus-  
28 trialization, child labour remains in a backwater.

29 The failure of child labour to stage a mainstream comeback is surprising in that  
30 the current conventional wisdom retains complementary themes. For one thing,  
31 current views downplay but do not eradicate the contributions of the cotton  
32 industry and factories. These retain their strategic importance in industrialization.  
33 Thus, the sector and the organizational innovation most strongly associated with  
34 rising demand for child workers remain to the fore. Moreover, Smithian special-  
35 ization and division of labour are now celebrated as the energizing forces behind  
36 eighteenth-century growth. In turn, such changes provided opportunities to sub-  
37 stitute children for adults in the labour process. The reorganization of production  
38 around a more detailed division of labour created jobs, which children could fill.  
39 Indeed, some researchers have argued that organizational change was more impor-  
40

41 <sup>18</sup> For example, Pinchbeck and Hewitt, *Children*; Rose, 'Social policy'; Lane, 'Apprenticeship'; Bolin-Hort,  
42 *Work, family and the state*; Nardinelli, *Child labor*; Sharpe, 'Poor children'; Dupree, *Family structure*; Horrell and  
43 Humphries, 'Exploitation'; Cunningham, *Children and childhood*; idem, 'Employment and unemployment of  
44 children'; idem, 'Combating child labour'; idem, 'Decline of child labor'; Cunningham and Viazzo, eds., *Child  
45 labour*; Hopkins, *Childhood transformed*; Horn, *Victorian and Edwardian schoolchild*; Heywood, *History*.

46 <sup>19</sup> Tuttle, 'Revival'; idem, *Hard at work*; Horrell and Humphries, 'Child labour'; Humphries, 'Child labour';  
47 Kirby, 'Causes of short stature'; idem, *Child labour*; Lavalette, ed., *Thing of the past?*; Honeyman, *Child workers*;  
48 Levene, 'Parish apprenticeship'; Rahikainen, *Centuries*.

49 <sup>20</sup> Honeyman, *Child workers*; Levene, 'Parish apprenticeship'. These authors build on earlier work drawing  
50 attention to the importance of pauper apprentices; see Rose, 'Social policy'; Lane, 'Apprenticeship'.

1 tant than mechanization in boosting demand for child workers.<sup>21</sup> In addition,  
2 although optimists have argued against the poverty and family hardship that an  
3 earlier generation of economic historians thought widespread in the period, they  
4 have not carried the day. The current consensus appears to be that real wages did  
5 not grow consistently until the second third of the nineteenth century, and that  
6 occupational, regional, and demographic pockets of poverty persisted.<sup>22</sup> In such  
7 pockets, conditions were rife for child labour. A judicious reading of the latest  
8 interpretations leaves space for an increase in both the demand for and supply of  
9 child workers during the industrial revolution.

10 My argument goes further. The claim is that a more gradual industrial revolu-  
11 tion, sanitized by the relegation of dark satanic mills to a lesser role, nonetheless  
12 retained at its heart and pulsing through its life-blood this shameful feature of its  
13 older heroic variant. Child labour was a major contributing factor in Britain's  
14 industrialization.

15 My evidence comes from more than 600 autobiographies by working men who  
16 lived in the eighteenth and nineteenth centuries.<sup>23</sup> These memoirs describe their  
17 authors' labour as children, their childhoods, their family and social connections,  
18 their careers, and their schooling. The chronological and geographical spread of  
19 the memoirs provides an opportunity to investigate the causes and consequences  
20 of child labour in times and places where more conventional sources shed little  
21 light, while the rich individual detail opens up exciting possibilities to combine  
22 quantitative analysis of measurable dimensions of children's work with telling  
23 narrative. Readers might be suspicious of personal accounts, especially as a source  
24 for both qualitative and quantitative information, but close inspection has sug-  
25 gested a high degree of truthfulness and accuracy. Moreover, the economic cir-  
26 cumstances and demographic structure of the autobiographers' families matches  
27 up with what is known of the population in these times.<sup>24</sup> The surviving set of  
28 memoirs appears to mimic a representative sample and has been treated as such in  
29 my search for patterns and relationships.<sup>25</sup> Bearing in mind the findings from other  
30 recent research described above, what has this prosopography revealed?

31 First, the autobiographies demonstrate that the classic era of industrialization,  
32 1790–1850, saw an upsurge in child labour. This finding is consistent with older  
33 accounts as well as recent scholarship.

34  
35 <sup>21</sup> Goldin and Sokoloff, 'Women, children and industrialization'.

36 <sup>22</sup> R. C. Allen, 'Pessimism preserved: real wages in the British industrial revolution', Oxford University,  
37 Department of Economics, working paper 314 (2007).

38 <sup>23</sup> I have already cited the pioneering bibliography by Burnett et al., which helped to identify and locate many  
39 working-class autobiographies. I did however add 75 autobiographies of men born before 1878 to those identified  
40 by Burnett et al. Although the success of Burnett et al. in publicizing this wonderful source ensured a flow of new  
41 material, the many volumes of *Lives of early Methodist preachers*, edited by Jackson, for instance, turned up  
42 overlooked examples. Humphries, *Childhood and child labour*, provides a full bibliography of the 617 memoirs  
43 drawn upon, including those newly discovered, and, where relevant, specifies the editions consulted.

44 <sup>24</sup> Humphries, *Childhood and child labour*, pp. 14–24.

45 <sup>25</sup> There is one obvious way in which the sample is unrepresentative: the autobiographers were all male. Women  
46 do appear in *Childhood and child labour* but only as wives, mothers, sisters, aunts, and other kin, and they are all  
47 seen through male eyes. There are far fewer autobiographies by working women, and it would have been difficult  
48 to provide a balanced picture in a single study. Current work, supported by the ESRC (Memories of Industri-  
49 ousness, RES-051-27-0273) begins to remedy the neglect of a female perspective by providing a comparative  
50 survey of female working-class autobiography.

1 The vast majority of working-class autobiographies record age at starting work.<sup>26</sup>  
2 They also usually provide a date of birth or its rough approximation, allowing  
3 stratification by cohort to span the chronology of the industrial revolution. The  
4 first cohort includes the earliest autobiographies with a cut-off birth date of  
5 1790.<sup>27</sup> The second and third cohorts cover the classic period of industrialization,  
6 from 1791 to 1820 and 1821 to 1850. The final cohort runs from 1851 until  
7 1878.<sup>28</sup> Cross-tabulations of age at starting work with cohort of birth reveals that  
8 age at starting work was lower for boys born in the two middle cohorts of the  
9 industrial revolution.<sup>29</sup> In the sample as a whole, mean age at starting work first  
10 declined and then increased over time, falling from 11.5 in the first cohort to 10.28  
11 and 9.98 in the middle cohorts, before rising again to 11.39 in the final cohort.<sup>30</sup>  
12 This pattern is reflected in the cumulative frequency of age by which boys started  
13 work, as shown in figure 1. By the age of 15, work was almost universal in all  
14 cohorts, but there were dramatic differences over time in the proportions working  
15 at younger ages. Very young working was rare in the first and fourth cohort but  
16 much more common in the middle period. Thus, while only a fifth of boys under  
17 10 were at work before 1791 and after 1850, this proportion was almost doubled  
18 in the two middle cohorts.

19 As the figure 2 shows, this pattern persists when the data are analysed by father's  
20 occupational group as well as cohort of birth.<sup>31</sup> Most occupational groups exhibit  
21 a U-shaped relationship between age at starting work and cohort. The cohort born  
22 after 1850 started work later than did the two middle cohorts in all occupational  
23 groups except the sea. In six occupational groups (agriculture, mining, factory,  
24 outwork, trades, and services) the cohort born before 1791 started work later than  
25 did those born in the crucible of industrialization.

26 However, although replicated within occupational groups, the U-shaped varia-  
27 tion in age at starting work by cohort is dominated by the across-group differences,  
28 underlining the importance to boys' life chances of their fathers' occupations, for  
29 these determined men's wages and so their families' economic circumstances. For  
30 example, the sons of tradesmen, seamen, and service workers in all cohorts started  
31 work later than did the sons of domestic outworkers and casual labourers, even in  
32 the final cohort.

34 <sup>26</sup> Including a small number of additional authors who enabled age at starting work to be identified from  
35 contextual information, 520 autobiographers provided this information.

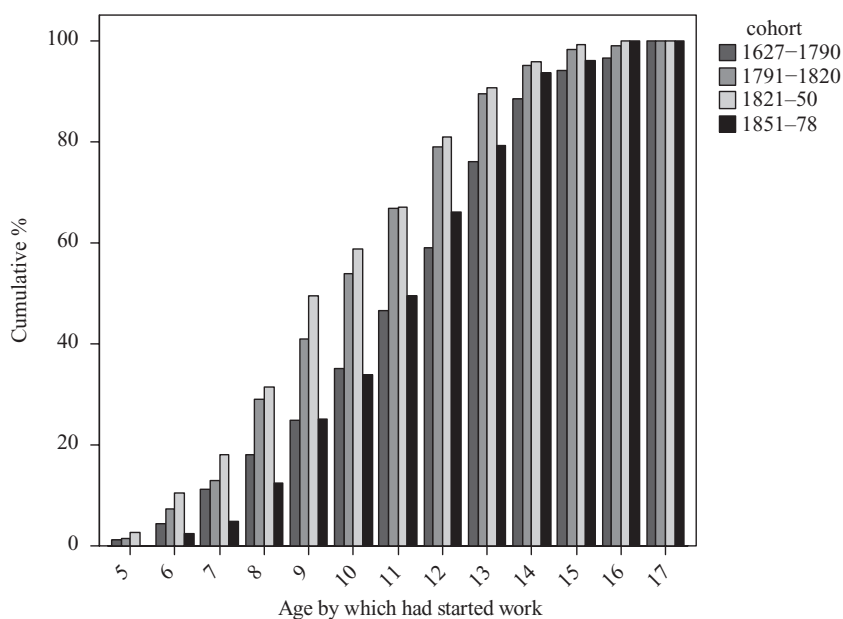
36 <sup>27</sup> The inclusion of autobiographers born in the seventeenth century could be viewed as problematical, as  
37 earlier writers might be drawn from more prosperous echelons of the working class, so biasing conclusions drawn  
38 from comparisons across cohorts. In fact, there are only two autobiographers born before 1650 (Leonard  
39 Wheatcroft, born 1627, and Edward Barlow, born 1642), and only 11 others born before 1700, altogether  
40 comprising 2.1% of the total sample.

41 <sup>28</sup> The first cohort, boys born between 1627 and 1790, comprises 19.9% of the sample; the second, those born  
42 between 1791 and 1820, 24.3%; the third, those born between 1821 and 1850, 27.7%; and the fourth, those born  
43 between 1851 and 1878, 27.4%. There are 10 boys whose date of birth is unknown (1.6% of the sample), but  
44 context allows six of these to be placed in a birth cohort, leaving only four boys (0.6% of the sample) with cohort  
45 unknown.

46 <sup>29</sup> 518 autobiographers recorded both age at starting work and cohort of birth.

47 <sup>30</sup> For further discussion of this result, including its economic and statistical significance, see Humphries,  
48 *Childhood and child labour*, pp. 175–7.

49 <sup>31</sup> Autobiographers usually recorded their fathers' occupation or activities, so classification by occupational  
50 group is possible in over 90% of cases, though requiring this additional information does reduce the sample size  
51 to 481.



1 Figure 1. *Age at starting work, by cohort*

2 *Source:* Working-class autobiographies listed in Humphries, *Childhood and child labour*.

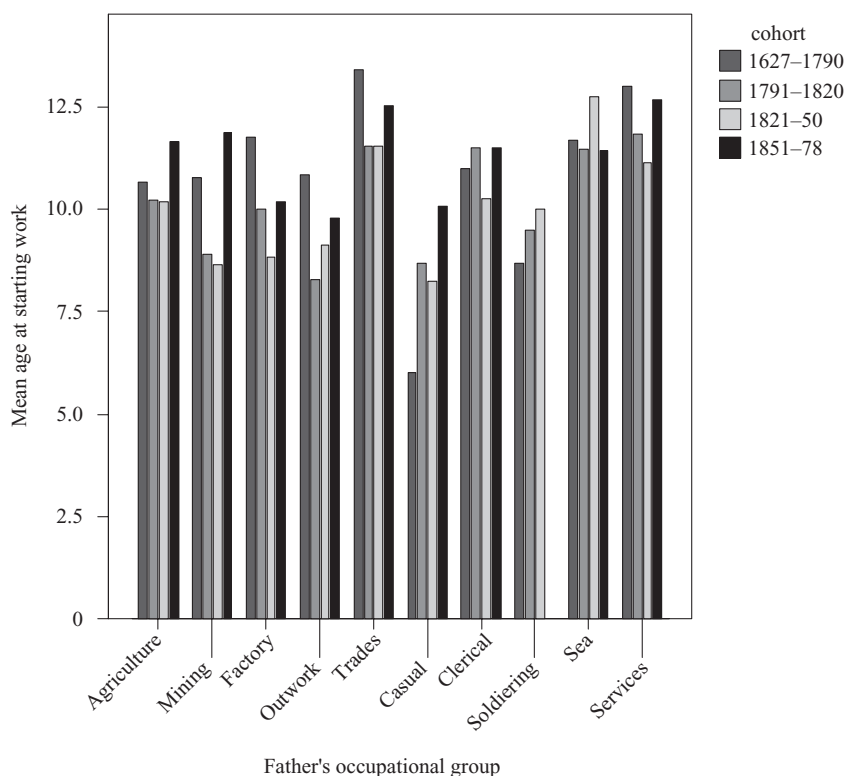
3  
 4 The ranking of the occupational groups was not static over time. Shifts in the  
 5 occupational hierarchy are detectable in the relative ages at which sons began work.  
 6 Domestic manufacturers, for example, were once part of the working-class elite,  
 7 but deskilling associated with a more detailed division of labour and competition  
 8 from factory-produced goods ground down their living standards. Their sons  
 9 experienced a dramatic decline in age at starting work in the second cohort  
 10 consistent with this loss of economic status. Soldiers' sons in the first and second  
 11 cohorts started work later than did the sons of casual workers, but this advantage  
 12 disappeared as soldiers' relative pay deteriorated. In contrast, seamen's sons did  
 13 not manifest the decline in age at starting work for the middle cohorts. Sailors'  
 14 apparent ability to support dependent children through this period reflects the  
 15 effects of the French and Napoleonic wars when wages rose to extraordinary  
 16 levels.<sup>32</sup>

17 Second, the evidence is also emphatic that child labour was endemic in the early  
 18 industrial economy, entrenched in both traditional and modern sectors and wide-  
 19 spread geographically. Table 1 demonstrates the extensive overlap between the  
 20 most frequently recorded first jobs from the autobiographies and the top 20 jobs  
 21 for 10- to 14-year-old males computed from the 1851 census by Kirby.<sup>33</sup> Not only  
 22 does this boost confidence that the source is representative of economic condi-  
 23 tions, but it confirms, for an earlier period, Kirby's assertion on the basis of census  
 24 data that child labour extended well beyond the mills and mines that dominated its  
 25 classic profile and that the biggest employers of children were the traditional  
 26 sectors of the economy.

27  
 28 <sup>32</sup> See Davis, *English shipping*.

29 <sup>33</sup> Kirby, 'Brief statistical sketch', p. 242.





1 Figure 2. *Average age at starting work, by cohort and father's occupational group*  
 2 Source: As for fig. 1.

3  
 4 It is hardly surprising that agriculture, small-scale manufacturing, and services  
 5 should provide the majority of jobs for children. After all, as the new views of the  
 6 industrial revolution emphasize, these sectors, along with customary methods of  
 7 production, dominated the developing economy, with factories and mechanization  
 8 but tiny islands of modernity until well into the nineteenth century. Recognition of  
 9 child labour's importance in traditional employments has coincided with a new  
 10 appreciation for the role of agriculture, small-scale manufacturing, and services in  
 11 industrialization, and this should help to restore child workers to the centre of the  
 12 economic stage.

13 Third, although the autobiographical evidence concurs with other recent find-  
 14 ings in recognizing the extent of children's employment in traditional sectors of the  
 15 economy, it assigns a strategic role to their work in factories. The novelty of  
 16 large-scale mechanized production units meant that they could not absorb the  
 17 majority of child workers, but it also meant that they lacked an established labour  
 18 force and the recruitment of children was essential if they were to expand. Hon-  
 19 eyman makes this point in relation to pauper apprentices.<sup>34</sup> The autobiographies  
 20 suggest that both these wards of the state and 'free' child workers constituted an  
 21 important component of early factory labour, growing up to become a permanent  
 22

23 <sup>34</sup> Honeyman, *Child workers*.

Table 1. *Most frequently recorded first jobs and top twenty jobs for 10–14-year-old males in England and Wales (excluding London), 1851 Census*

<i>Most frequently recorded first jobs</i>	<i>Top twenty jobs</i>
1. Agriculture <sup>a</sup>	1. Agricultural labourer (out-door)
2. Messenger, porter	2. Farmer's, grazier's, son, grandson, etc.
3. Cotton manufacture <sup>b</sup>	3. Messenger, porter (not government)
4. Coal-miner	4. Farm servant (in-door)
5. Woollen/worsted manufacture <sup>b</sup>	5. Cotton manufacture
6. Shop boy/retail	6. Coal-miner
7. Monitor schoolteacher	7. Labourer (branch undefined)
8. Sailor	8. Woollen cloth manufacture
9. = Shoemaker	9. Worsted manufacture
9. = Office boy	10. Shoemaker
11. Domestic servant	11. Silk manufacture
12. Hawker/street-trader	12. Iron manufacture
13. Printer/compositor	13. Domestic servant (General)
14. Rope/paper manufacture	14. Earthenware manufacture
15. Carpenter/joiner	15. Tailor
16. Earthenware manufacture	16. Hose, stocking, manufacture
17. Silk manufacture	17. Blacksmith
18. Iron manufacture	18. Carpenter, joiner
19. Blacksmith	19. Mason, paviour
20. Tailor	20. Brickmaker

Notes: *a* includes all agricultural occupations; *b* includes factory work and domestic manufacturing.  
 Source: Census data taken from Kirby, 'Brief statistical sketch', p. 242.

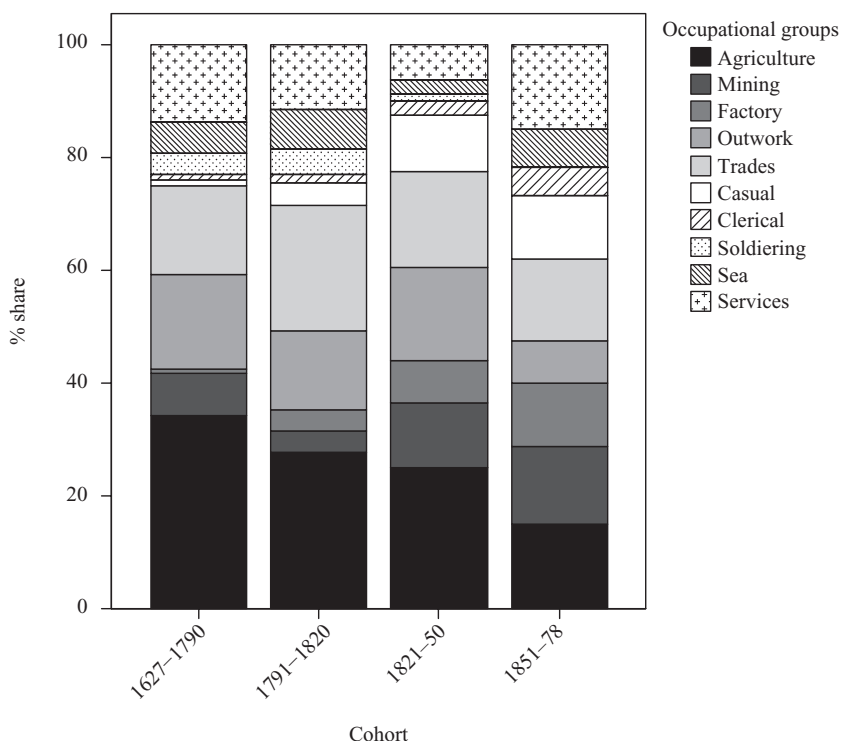
workforce. A comparison of the relative proportions of fathers and sons who had jobs in factories, as shown in figures 3 and 4, illustrates the point.

According to the autobiographies, factory jobs always absorbed a larger share of the child labour force than of the adult labour force (roughly twice as large) although this gap narrowed as the sector grew in overall importance and its workforce became established. Whereas for the first cohort, factory workers comprised 7 per cent of the child workforce but only 1 per cent of the adult workforce, after 1850 they made up 16 per cent of the child workforce and by then 11 per cent of the adult workforce; the factory workforce became more adult while growing in both absolute and relative terms. The generational differences in factory employment lead to the same conclusion that Honeyman drew from her very different sources; without the early and important contribution made by child labour, it is difficult to see how the factory sector could have expanded at the pace and in the way that it did.<sup>35</sup>

Autobiographies from the late eighteenth century and early nineteenth century illustrate at the micro level just how important child workers were in these years of embryonic factory development. Robert Collyer (born 1823), described the need for labour and the way in which it was met:

Very early in the last century there was an urgent need for children to work in the factories they were building then on all the streams they could find fit for their purpose in the West Riding of Yorkshire. The local supply of 'help' could not begin to meet the demand; and so the owners of the factories went or sent south to scour the asylums

<sup>35</sup> *Ibid.*, pp. 91–111.



1 Figure 3. *Fathers' occupational groups, by cohort*

2 Source: As for fig. 1.

3  
 4 where children were to be found in swarms, to bring them north and set them to work  
 5 as apprentices . . .<sup>36</sup>

6  
 7 This economic and social innovation had dramatic import for Collyer's own  
 8 family. Collyer's parents were both the orphans of sailors lost at sea and sent from  
 9 different distant parts of Britain to work in the same West Riding textile factory.  
 10 Collyer senior came from a workhouse in London to which he had been consigned  
 11 when his father was lost: 'He told me they gave him the free choice to go or stay  
 12 and wanted him to stay; but he said "I will go." And so it was he went out, not  
 13 knowing whither he went, was bound apprentice, and served his time . . .'.<sup>37</sup>  
 14 Collyer's mother hailed from Norwich, suggesting this strategy was a widespread  
 15 response by the overseers of the old poor law to maritime orphanage. In a later,  
 16 more mature stage of its operation, the same factory saw Robert and his brother  
 17 similarly employed, alongside many other children of around seven and eight years  
 18 old, standing at the spinning frames, '13 hours a day five days in the week, and  
 19 eleven on the Saturday'.<sup>38</sup>

20 Finally, the autobiographical evidence is also emphatic about the extent and  
 21 chronology of very young working. Here it is at odds with Kirby's claim that very  
 22

23 <sup>36</sup> Collyer, *Memories*, p. 2.

24 <sup>37</sup> *Ibid.*, pp. 2-3.

25 <sup>38</sup> *Ibid.*, p. 15.

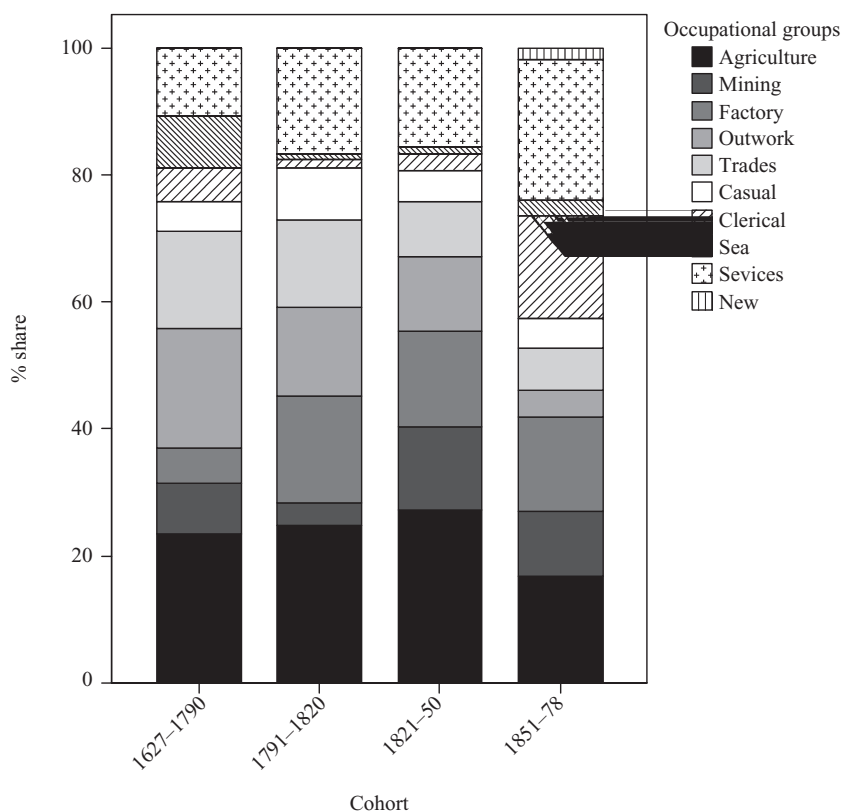


Figure 4. *First jobs, by cohort*

Source: As for fig. 1.

young working was ‘never widespread’ in Britain.<sup>39</sup> The rise in child participation rates in the late 1700s and early 1800s was associated (given the almost universal participation of boys over 14 almost necessarily) with younger working, and, if ‘very young’ working meant working before the age of 10, this was far from rare. In the cohorts that lived through this period, the sons of miners, factory workers, outworkers, casual workers, and soldiers all on average started work below the age of 10. Of the boys from whom we heard, Robert Collyer started work aged eight, William Arnold aged six, Jonathan Saville aged seven, and Edward Rymer aged ten. None of these boys considered their age at starting work exceptional, though Arnold notes how strange an early twentieth-century audience would find it. We do not know how old John Shipp was when he started work, but he was about 12 when he volunteered for the army and had been boarded out with a local farmer and so working at least part-time for several years prior to this event.<sup>40</sup>

<sup>39</sup> Kirby, *Child labour*, p. 131.

<sup>40</sup> Collyer, *Memories*, p. 5; Arnold, *Recollections*, p. 13; Saville, ‘Autobiography’, p. 6; Rymer, ‘Martyrdom’, p. 3; Shipp, *Memoirs*, pp. 18–20. For further evidence on ages at starting work, see Humphries, *Childhood and child labour*, pp. 172–209.

II

1  
2  
3 How can we interpret the upsurge in child labour that accompanied the indus-  
4 trial revolution? In this section, I use Basu and Van's influential model of labour  
5 markets with child labour to explicate the findings described above.<sup>41</sup>

6 Two basic assumptions are central to this model: the luxury axiom and the  
7 substitution axiom. The luxury axiom asserts that households send their children  
8 to work only when driven to do so by poverty. Children's 'non-work' (that is,  
9 their attendance at school or their leisure) is a luxury good. Households whose  
10 adult incomes are very low cannot afford to keep children out of some produc-  
11 tive activity, and only when adult incomes rise are children withdrawn. Implicit  
12 in this account is an altruistic view of parents and guardians. They prefer their  
13 children not to work and only consent to their employment to make ends meet.  
14 As soon as circumstances improve, children are withdrawn from the labour  
15 force.

16 The substitution axiom asserts that adult and child workers are substitutes  
17 subject to some adult equivalency correction. Contrary to the traditional idea  
18 that some tasks are better suited to children, and indeed in the limit require  
19 children to perform them, adults can do anything that children can do; from a  
20 purely technical point of view, it is always possible to replace children with  
21 adults in the labour process. Of course, adults cost more and so employers may  
22 be reluctant to do so, but technically substitution is possible. Together these  
23 two assumptions found the basic static model of labour markets with child  
24 work.<sup>42</sup>

25 Assume for simplicity that the economy consists of  $N$  households and that each  
26 household consists of one adult and  $m$  children. Labour is the only productive  
27 factor. In one day, each adult can supply a unit of labour and each child  $\gamma$  ( $\neq 1$ ):  
28 a formalization of the substitution axiom. Let the daily wage rate for an adult be  
29  $w$  and for a child be  $w^c$ , so that  $w^c = \gamma w$ .

30 Each household decides on the minimum acceptable level of consumption,  
31 called here subsistence consumption,  $s$ , though  $s$  may involve some historically-  
32 established standard of living. Adults work full-time. Only if income nonetheless  
33 falls below subsistence consumption are children sent to work, as assumed in the  
34 luxury axiom.

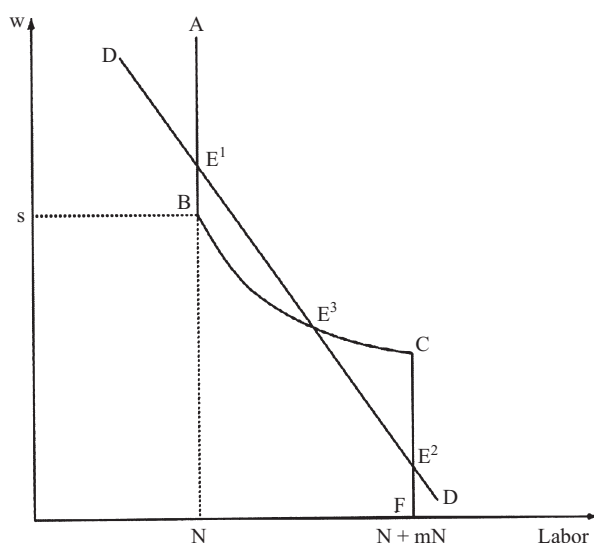
35 Figure 5, taken from Basu and Tzannatos, illustrates the comparative statics of  
36 the basic model.<sup>43</sup> The main interest is the supply of labour. In the figure, the adult  
37 wage is represented on the vertical axis. If this wage is greater than  $s$ , only adults  
38 supply labour. Assuming, for simplicity, that adult labour supply is perfectly  
39 inelastic, then AB is part of the aggregate supply. As  $w$  falls below  $s$ , children are  
40 sent to work in an effort to reach the target income, and aggregate labour supply  
41 increases. This continues until all child and adult labour is supplied, whereupon  
42 the labour supply becomes inelastic once more.

43 The essential feature of labour supply in this model, ABCF, is its backward-  
44 bending section. The precise shape of this section depends on the particular

45  
46 <sup>41</sup> Basu and Van, 'Economics'; see also, Basu, 'Child labor'; Basu and Tzannatos, 'Global child labor problem'.

47 <sup>42</sup> Basu, 'Child labor', pp. 1100–3.

48 <sup>43</sup> Basu and Tzannatos, 'Global child labor problem', p. 150.



1 **Figure 5.** *Labour market with child labour*

2 *Source:* As for fig. 1.

3  
 4 assumptions made. For example, the stretch BC can be a segment of a rectangular  
 5 hyperbola under the assumption that the household uses child labour to attain its  
 6 target income,  $s$ . However, so long as there is a backward-bending section, as  
 7 implied by the luxury and substitution axioms, it is possible that the demand curve  
 8 will intersect the supply curve more than once.

9 Figure 5 illustrates the case of a conventional downward sloping demand curve  
 10 for labour. There are three equilibria,  $E^1$ ,  $E^2$ , and  $E^3$ . Of these,  $E^1$  and  $E^2$   
 11 are stable. At  $E^1$ , wages are high and there is no child labour, and at  $E^2$ , wages  
 12 are low and children as well as all adults work. The same economy can be stuck at  
 13 either equilibrium, and if this model were fitted into a Walraisian system, each  
 14 equilibrium would be Pareto optimal. However, it is easy to show that workers' households  
 15 are better off at  $E^1$  compared with  $E^2$ . Therefore, if the welfare of poorer  
 16 people were prioritized  $E^1$  is preferable. The inability of workers to move the  
 17 economy from the 'bad equilibrium'  $E^2$  to  $E^1$  can be thought of as a coordination  
 18 failure. If all workers could credibly commit to not employing their children, then  
 19 the economy would be at their preferred equilibrium  $E^1$  with higher adult wages  
 20 but no child labour.

21 Development economists use the model to identify changes that would elimi-  
 22 nate child labour. The relative productivity of children is a key factor. Technologi-  
 23 cal change that lowers the relative productivity of children, such as the use of  
 24 computers, reduces  $\gamma$ , and, as figure 5 illustrates, this shifts F left and the equilib-  
 25 rium with child labour disappears. In this case, technological progress alone  
 26 eradicates child labour. The model also helps development economists design  
 27 effective policy by illustrating whether a proscription of child labour would  
 28 succeed. Consider the implications of a ban on child labour. Even if the economy  
 29 were at  $E^2$  initially, a ban on child labour would reduce the supply of labour to NA,  
 30 and if demand conditions were unchanged the economy would settle at the only

1 surviving equilibrium,  $E^1$ .<sup>44</sup> Subsequently, even if the authorities withdrew the bar  
2 on child labour, the economy would remain at  $E^1$  since this was an equilibrium of  
3 the original economy, the 'benign intervention' simply solving the workers' coordi-  
4 nation problem and facilitating their attainment of their preferred equilibrium.  
5 Similarly, compulsory schooling, or trade union action to exclude child workers if  
6 it was sufficiently widespread and binding, could also drive the economy to the  
7 equilibrium without child labour.

8 However, the model can also be used, as here, in reverse, to illustrate the  
9 circumstances, which make child labour both possible in terms of the existence of  
10 an equilibrium with child labour, and probable in terms of the potential for  
11 exogenous developments to shift the economy to such a bad equilibrium. How  
12 historically realistic are these circumstances and are there historical candidates for  
13 exogenous developments which consigned the early industrial British economy to  
14 a bad equilibrium?

15 Just as a fall in the relative productivity of children can eliminate an equilibrium  
16 with child labour so a rise in their relative productivity can call into existence a new  
17 equilibrium with child labour. Marx argued that machinery by making children  
18 relatively more productive led to their substitution for adult workers and under-  
19 pinned the boom in children's work that he associated with early factory produc-  
20 tion. The basic model can illustrate this classic explanation. If technology changes  
21 so that children become relatively more productive,  $\gamma$  would increase. From  
22 figure 5 it is clear that this would result in F moving right and the bad equilibrium  
23 would then involve more (younger) children working or a new equilibrium with  
24 child labour would appear in an economy where initially there had been no  
25 intersection of the demand curve with the CF section of labour supply.

26 The autobiographies include many cases where mechanization created jobs for  
27 children, the archetype being in the early textile factories, here vividly described by  
28 J. R. Clynes:

29  
30 Clatter, rattle, bang, the swish of thrusting levers and the crowding of hundreds of men,  
31 women and children at their work. Long rows of huge spinning frames, with thousands  
32 of whirling spindles, slid forward several feet, paused and then slid smoothly back again,  
33 continuing this process unceasingly hour after hour while cotton became yarn and yarn  
34 changed to weaving material . . .<sup>45</sup>

35  
36 However, jobs for children were often conjured into existence not by full  
37 mechanization but by the partial mechanization of one specific sub-procedure, and  
38 this happened in many sectors, modern and traditional. Thus Robert Dollar, in  
39 describing how aged 12 in 1856 he started work in a machine shop, alerted his  
40 readers to what he suggested was a common children's job. Dollar was set on to  
41 attend a lathe: 'In those days there were no self-feeding lathes and small boys were  
42 used for that purpose'.<sup>46</sup>

43 Yet mechanization, despite its hold on the imaginations of economic historians,  
44 was not alone in creating the possibility of a bad equilibrium. Other changes, such  
45 as a more detailed division of labour, greater work discipline, or an expansion in  
46

47 <sup>44</sup> Less happily, if the demand for labour only intersects the supply curve in the range CF, banning children's  
48 work would only make things worse for poor families.

49 <sup>45</sup> Clynes, *Memoirs*, p. 29.

50 <sup>46</sup> Dollar, *Memoirs*, p. 3.

1 the scale of production might by making children relatively more productive have  
2 the same effect. Just such organizational initiatives were hallmarks of the domestic  
3 manufacturing and putting out systems that drove Smithian growth in the eight-  
4 teenth century. Significantly, many labour historians have seen this phase of  
5 economic development rather than factory production as the high-water mark of  
6 child labour. Nor do the implications of attention to organizational changes stop  
7 with the proto-industrial phase of textile production, for these innovations were  
8 particularly important in miscellaneous manufacturing such as boot, shoe, glass,  
9 and paper manufacturing, where children's work has been perhaps relatively  
10 underestimated. Examples abound.

11 Frank Galton described the effects of competition from workshops using a more  
12 detailed division of cheaper labour on once-skilled workers and their standard of  
13 living. Galton's father was a saddler, a highly skilled trade that had called for a  
14 substantial apprenticeship premium. When Frank was born in the 1860s, Galton  
15 senior had been able to earn 70s. a week, which at that time meant 'comfort and  
16 even some luxury'.<sup>47</sup> Ominously, a new system of production had begun to invade  
17 saddle making and 'there were springing up at Walsall and Wolverhampton large  
18 workshops where saddles were made on the principle of subdivided labour in  
19 which many parts were performed by boys and girls'.<sup>48</sup> The increased supply  
20 forced down the price and reduced wages for the London saddlers, Galton senior  
21 included. Moving several times to decreasingly salubrious surroundings, the fami-  
22 ly's fortunes fell to their lowest ebb when Galton senior became unemployed.  
23 Although in this case the father eventually found work, which enabled the family  
24 to survive albeit without restoring its previous prosperity, by then both elder boys  
25 aged 13 and 11 were at work and Mrs Galton too had sought paid employment  
26 both within and outside the home.<sup>49</sup>

27 Another way in which a more detailed division of labour created jobs for  
28 children was through its association with an increased need to move work in  
29 progress and finished goods around the workplace. Children in the pottery indus-  
30 try moved clay to the potters, moulds to the kilns, pots to the packing cases,  
31 returned moulds to the stores, and so on, in never-ending circles of effort.<sup>50</sup>  
32 Children on the brickfields lugged clay to the brick maker and transported barrow-  
33 loads of bricks, stacking, heaving, and struggling until humpbacked from the  
34 labour.<sup>51</sup> Children in coalmines hauled and hurried sleds and corves of coal further  
35 and further distances as the workings extended, and although wheels and later  
36 ponies made their toil easier, they still pushed the carts or guided the animals.<sup>52</sup>  
37 Everywhere we might look in the early industrial economy, there were forces  
38 promoting equilibria with child labour.

39  
40 <sup>47</sup> British Library of Political and Economic Science, Department of Manuscripts, MS, F. W. Galton, 'Auto-  
41 biography', (no date), p. 1.

42 <sup>48</sup> *Ibid.*, p. 5.

43 <sup>49</sup> *Ibid.*, p. 21.

44 <sup>50</sup> See the autobiographies by Charles Shaw and John Finney as cited in the bibliography of Humphries,  
45 *Childhood and child labour*, pp. 402, 385.

46 <sup>51</sup> See the autobiographies by Will Thorne and Arthur Marshel as cited in the bibliography of Humphries,  
47 *Childhood and child labour*, pp. 406, 395, and the overview account by the Victorian philanthropist George Smith,  
48 *Cry of the children*.

49 <sup>52</sup> See the autobiographies by Edward Rymer, George Parkinson, Robert Watchorn, and a Trade Union  
50 Solitary, as cited in the bibliography of Humphries, *Childhood and child labour*, pp. 401, 398, 407, 406.



1 Equally important, there were no institutions holding the economy at a good  
2 equilibrium without child labour. In fact, we can interpret the era after 1750 as one  
3 of deregulation, associated with the weakening and dismantling of institutions and  
4 norms that might have held the economy at  $E_1$  with no child labour and solved the  
5 coordination failure. Deregulation was manifest in the lack of protective labour  
6 legislation, the decay of guild controls, the repeal of statutory apprenticeship  
7 (1814), the Combination Acts, and, the increasingly punitive poor law. An anony-  
8 mous master shoemaker described the deregulation of his trade in Northampton  
9 which he visited in the 1820s. Boots and shoes continued to be produced in a  
10 domestic setting, but both methods and tools had been redesigned to accommo-  
11 date women and children's labour:

12  
13 Factory Acts and School Boards were then unknown, and the detestable custom of  
14 compelling women to do men's labour, and taking children from their pap to work like  
15 niggers was in full swing. Too small to use the clams in ordinary use, clams of a smaller  
16 size were introduced for these child-workers. A feeling of horror used to creep over me  
17 whenever I passed over a threshold where this kind of labour was indulged in.<sup>53</sup>  
18

19  
20 As a result of these organizational initiatives, the prices for closing shoes were  
21 much lower in Northampton than in London, and according to the anonymous  
22 author the only ways a single workman could survive without the help of a wife and  
23 children, were to 'scamp' it or work 16 hours a day. Competition from family  
24 labour involved either compromising quality or working longer hours.

25 However, child labour was not supplied passively to farms, workshops, domestic  
26 enterprises, shops and offices. Instead, it contributed actively to the developing  
27 divisions of labour and organizational readjustments that sustained traditional  
28 units of production and maintained their competitiveness. Key to understanding  
29 this is that children, while competitors in the labour market, were dependents and  
30 contributors in the household. When family incomes were inadequate, children  
31 became 'added workers' but as added workers they increased the amount of labour  
32 available, promoted deskilling, and reduced pay further. 'Competitive depen-  
33 dence', as Doepke and Zilibotti term it, thus engineers an equilibrium with child  
34 labour.<sup>54</sup>

35 In trade after trade, autobiographers describe such cycles of competitive depen-  
36 dence and not only in the obvious case of handloom weaving. Frank Galton was  
37 sent to work at a relatively young age on account of his father's falling wages, as  
38 competition from workshop production using a detailed division of labour and  
39 child workers drove down prices. Galton junior was not himself employed in  
40 making saddles but the sons of other men were and we do not have to look far to  
41 find unambiguous examples of competitive dependence, where a son's own cheap  
42 labour undercut his father's skilled work. William Arnold recollected:

43  
44 When I was just over seven I went into the boot trade. There was no room for a child my  
45 age in the kind of work my father did . . . But about this time an entirely new method  
46 of making shoes came up. It was called riveting . . . Now in riveting there are two  
47 processes. The first is to fit the upper to the last and fix the sole in its proper place  
48 ready for nailing. This is highly skilled labour, and requires some little knowledge of

49 <sup>53</sup> Anon., 'My life and adventures', p. 376; see also Arnold, *Recollections*.

50 <sup>54</sup> Doepke and Zilibotti, 'Macroeconomics', p. 1492.

1 shoemaking, quick judgment, and a good eye for shape and appearance. The other  
2 process is driving in the rivets that are to hold the boot together—one or two rows of  
3 nails all the way round the sole. This part is not nearly so difficult . . . It was soon  
4 discovered that boys could do this second part of the work quite so well as men, and  
5 generally quite as quickly, so it was usual for each riveter to have a boy . . . known as the  
6 sprigging boy.<sup>55</sup>

7  
8 At its root, however, poverty, as manifest through the luxury axiom, is the main  
9 factor behind child labour in Basu and Van's basic model. Superficially, this might  
10 be hard to square with recent accounts of trends in living standards during the  
11 industrial revolution. However, there is strong evidence to suggest that not all  
12 families shared in economic progress and a sufficient number might have fallen  
13 behind to contrive the bad equilibrium. Key to economic well-being was the level  
14 and regularity of a father's wages, which could easily slip below what was needed to  
15 withhold children from the labour market. There were many reasons for such  
16 inadequacy. First, men top-sliced their wages, creaming off a share to finance their  
17 personal expenditure. Such guerdons were not always frittered away on tobacco,  
18 the ale-house, or gambling, and their legitimacy was generally accepted by other  
19 family members as a just reward for the breadwinner's efforts, but men's pocket  
20 money nonetheless meant that wages did not go in their entirety to support wives  
21 and children. Second, the reorganization of work and the introduction of new  
22 technology dispensed with many traditionally acquired skills and obliterated the  
23 premia associated with them, reducing wages for workers in these ill-fated trades.  
24 Third, even outside such hapless occupations, wages did not rise consistently over  
25 the period. The late 1700s and early 1800s, in particular, saw a clear stalling out of  
26 growth, described in Allen's work as 'Engels' pause'.<sup>56</sup> Wages did not rise and  
27 possibly fell in the largest occupation of all, that of agricultural labour. Fourth, to  
28 add to the problem of inadequate wages, the demographic growth of the period  
29 skewed the population towards younger age groups and elevated the dependency  
30 ratio. Families contained larger numbers of children requiring support. Fifth, even  
31 if men's wages were adequate in good times, there were seasonal and cyclical  
32 periods of under- and unemployment with which to contend. The autobiographies  
33 contain illustration of all such sources of inadequate male wages. Bill H's memoir  
34 weaves together a number of these themes. Bill's father was an agricultural labourer  
35 who earned 7s.–9s. a week when fully employed but was often out of work.<sup>57</sup> In  
36 addition, the family was very numerous. As a result, the children's living standard  
37 was miserable and their diet, in particular, suffered. In one memorable scene, Bill  
38 recalled the family was on the brink of starvation, which prompted him to beg some  
39 frozen turnips from a local farmer to try to feed his little brothers and sisters while  
40 his mother overcame her pride and appealed to the parson for help. Eleven children  
41 were born into this family, but not surprisingly, under these conditions, infant and  
42 child mortality was high; 'we died down to six', reported Bill laconically.<sup>58</sup>

43 Wages that fell below the breadwinner standard are not the end of the story,  
44 however, for a significant number of families appear to have had no breadwinners

45  
46 <sup>55</sup> Arnold, *Recollections*, p. 21.

47 <sup>56</sup> Allen, 'Engels' pause'.

48 <sup>57</sup> B. H—, 'Autobiography of a navvy', *Macmillans Magazine*, 5 (Nov. 1861–April 1862), pp. 140–51.

49 <sup>58</sup> *Ibid.*, p. 140.

1 at all or none in the form of a father. Mortality was one factor, for the demographic  
2 realities meant that about 18 per cent of fathers would die before their sons had  
3 reached the age of 14.<sup>59</sup> However, while the autobiographers were rendered  
4 motherless at rates comparable with those estimated for the population at large,  
5 they were made fatherless at higher rates, a finding interpreted as meaning that  
6 men reported as dead fathers who had merely gone missing. An unpleasant fact in  
7 these hard times was that fathers were not always reliable and sometimes disap-  
8 peared while probably still alive. If we add the 10 per cent of excess male mortality  
9 to the 8 per cent of fathers whom autobiographers acknowledged had deserted  
10 their families, it appears that 18 per cent of boys grew up in households abandoned  
11 by their male heads.<sup>60</sup>

12 The results of orphanage or marital breakup in terms of the survival of lone  
13 parent households appear very similar to findings from conventional sources: lone  
14 mothers massively outnumbered lone fathers. Families that were de facto father-  
15 less augmented those whose heads had perished to form a hard core of around a  
16 third of all families. These poor and vulnerable families were a major source of  
17 child labour and of very young working.

18 Reasons for a father's disappearance were many and varied. Ironically, indus-  
19 triousness often unintentionally separated men from their wives and children. The  
20 journeyman baker's father left his family in search of higher wages, but he was  
21 shipwrecked, lost his tools, took to dram-drinking, and stopped remitting money.  
22 The baker's mother dispersed her older children, a daughter into service, a son to  
23 herd cows, and another to live with an uncle, while she strove to support the little  
24 ones from her hand spinning.<sup>61</sup>

25 War and postwar trauma also destabilized families. Britain was at war for  
26 roughly half of the long eighteenth century.<sup>62</sup> Mobilization was on a wholly new  
27 level, reaching one in five adult males during the French wars from 1793 to 1815.<sup>63</sup>  
28 As Shipp's story reminds us, recruitment did not stop with adults. The fiscal  
29 military state's appetite for soldiers and sailors reached into the child population  
30 itself. While the role of institutions like the Marine Society in the recruitment of  
31 boy sailors is well known, the army's enlistment of adolescents has not received so  
32 much attention. Yet in 1797, several experimental regiments each composed of  
33 some 1,000 poor or orphaned boys aged between 10 and 16 were set up to  
34 augment the supply of recruits in the early years of the French wars and to relieve  
35 the burden that the boys constituted on their parishes.<sup>64</sup> Shipp volunteered for just  
36 such a regiment.

37 Of course, recruitment was mainly of adult men, and so of fathers, and many  
38 never came home. Loss of life among service-men was proportionately higher in  
39 1794–1815 than 1914–18.<sup>65</sup> However, even if fathers survived and continued to  
40 serve, Army and Navy pay seldom trickled back to their families and they often lost

41  
42 <sup>59</sup> Anderson, 'Social implications' p. 49.

43 <sup>60</sup> For further discussion of these points, see Humphries, *Childhood and child labour*, pp. 63–83.

44 <sup>61</sup> Anon., 'Life of a journeyman baker'.

45 <sup>62</sup> The intervening periods of 'peace' were often marked by considerable military and naval activity; see Bowen,  
46 *War*.

47 <sup>63</sup> Emsley, *British society*; Conway, *War*, p. 38.

48 <sup>64</sup> Spiers, *Army and society*, pp. 45–6.

49 <sup>65</sup> Greenwood, 'British loss of life', pp. 5–6, 15–16.

1 touch with their loved ones. Finally, and most traumatic of all, men who did return  
2 were often physically or mentally disabled or simply unable to readjust to civilian  
3 life. There was no hope of them resuming a breadwinner responsibility. Again, the  
4 autobiographies contain many illustrations, and one example will have to suffice.  
5 John James Bezer's father lost an eye in active service. He had been a sailor and  
6 floggings had left their mark on his flesh. 'They had unmanned him; can you  
7 wonder at that? Brutally used, he became a brute—an almost natural conse-  
8 quence'.<sup>66</sup> Bezer senior received a small pension in compensation for his damaged  
9 sight, but it secured 'extra big thumps' rather than 'little extra comforts' for it was  
10 spent on drink, which maddened him. Eventually, he was incarcerated in Green-  
11 wich Hospital, leaving the family dependent on poor relief.

12 Another background factor setting the scene for the boom in child labour was  
13 the precocious development of familial dependence on the male head. The  
14 growing dominance of waged labour, the relative lack of small-scale (peasant)  
15 agriculture, and (perhaps) the relatively high male wages of the early modern  
16 period contributed to a growing reliance by wives and mothers on their male  
17 partners. Britain developed breadwinner-dependent families early in its history,  
18 and in advance of sufficient prosperity or social discipline. Men's wages were not  
19 sufficiently high or sufficiently stable and men themselves not sufficiently reliable  
20 or self-controlled to bear the burden. The inadequacy of men's earnings and  
21 fallibility of male breadwinners resulted in 'breadwinner frailty' whereby families  
22 that were precociously dependent were vulnerable to disaster.<sup>67</sup> The death, inca-  
23 pacity, disappearance, or poor performance of a male head of household was  
24 catastrophic, plunging the family into poverty and threatening its disintegration.  
25 Add to this weakness the growing conditionality of poor relief. Long before the  
26 new poor law made explicit demands for self-reliance, industry, and prudence, the  
27 overseers of the old poor law had begun to require families to do everything they  
28 could to help themselves before they could be judged deserving of poor relief.  
29 Self-help included the employment of children, even young children, whose duty  
30 it was to help support mothers and siblings. In cases where families needed  
31 additional breadwinners, their older children were in the firing line. The stage was  
32 set for the boom in child labour.

### 34 III

35 Quantitative and qualitative analysis of a large number of autobiographies by  
36 working men who lived through the industrial revolution has demonstrated that  
37 there was an upsurge in child labour in the late eighteenth and early nineteenth  
38 centuries with children's work entrenched in traditional sectors as well as spreading  
39 in newly mechanized factories and workshops. I have interpreted this rise in terms  
40 of the appearance of a new equilibrium in the early industrial economy with more  
41 and younger children at work. The new equilibrium, in turn, was related to a number  
42 of co-incidental developments including: an increase in the relative productivity of  
43 children as a result of mechanization, new divisions of labour, and changes in the  
44 organization of work; the dynamics of competitive dependence linking labour  
45

46  
47 <sup>66</sup> Bezer, 'Autobiography', p. 159.

48 <sup>67</sup> For further discussion of these ideas, see Humphries, *Childhood and child labour*, pp.172, 367–8.

Table 2. *Proximate causes of age at starting work*

	$\beta$	<i>t</i> -statistic
Constant	714.676**	5.025
Date of birth	-0.786**	-4.976
Date of birth squared	0.0002**	5.006
Father's occupational group <sup>a</sup>		
Mining	-0.490	-1.139
Factory	-1.541**	-3.124
Domestic manufacturing	-1.044**	-2.630
Trades	1.327**	3.519
Casual	-1.499**	-3.097
Clerical	0.849	1.170
Soldiering	-0.095	-0.111
Sea	0.878	1.609
Services	1.297**	2.937
Unknown occupational group	-0.756	-1.033
Total children	-0.130**	-3.531
Mother's economic activity	-0.402	-1.681
Father dead	-0.078	-0.229
Father absent	-1.467**	-3.346
Poor law dummy	-0.810**	-2.183
Small business dummy	1.238**	3.635
N	386	
R <sup>2</sup> (adj)	0.283	
SEE	2.210	
F	9.456**	

Notes: *a* agricultural labourers constitute the omitted category; ast; significant at 10 per cent level; \*\* significant at 5 per cent level.

Source: Working-class autobiographies listed in Humphries, *Childhood and child labour*.

market and families; high dependency ratios within families; stumbling male wages and pockets of poverty; family instability; and breadwinner frailty. The establishment of these links forges a new synchronization between revised views of the industrial revolution and a revisionist history of child labour. The reintegration of child labour in the economic currents of industrializing Britain can be illustrated more formally by a regression analysis of age at starting work, reported in table 2, which shows its dependence on the factors indicated in this essay.

Thus, age at starting work fell then rose over the course of the industrial revolution even when other determinants are taken into account. It was conditioned too by father's occupation as the latter was crucial to a family's economic circumstances. Younger working was associated with more siblings, dead and absent fathers, and poverty as indicated by an encounter with the poor law authorities. Readers wanting further reassurance about these links can consult the tables that report these results in detail in my monograph.<sup>68</sup> However, I would like to conclude on a different note by returning to the voices with which I began and contemplating their authenticity and authority.

#### IV

The findings that I have described in this article are based on a methodology, the combination of quantitative and qualitative analysis, with which historians are

<sup>68</sup> *Ibid.*, pp. 176, 181.

1 often uncomfortable, and a source, autobiography, of which they are suspicious. As  
2 far as the former is concerned, I would argue that combining quantitative and  
3 qualitative analysis gets the best out of both methodologies by using them to  
4 check, balance, and inform each other. However, in the end it is the sources that  
5 distinguish my work, and I know that sceptics will remain unconvinced. As noted  
6 above, in *Childhood and child labour*, much effort went into demonstrating that the  
7 autobiographers were generally honest and their circumstances commonplace.  
8 Here I want to emphasize that the writers, themselves, often anticipated readers'  
9 doubts and sought to reassure them. While the authors admitted possible mistakes  
10 in recall of dates and places, they were ardent in their claims to 'general truth'.<sup>69</sup>  
11 They were convinced too that their stories were similar to and stood for many  
12 others of their time and class. Indeed this sense of commonality and community,  
13 of standing for something in the larger scale of things, was often what drove men  
14 to pick up the unfamiliar equipment of the scholar and with work-worn fingers to  
15 write their tales. Look at the way in which Will Thorne introduced his memoir:  
16 'Perhaps as I tell you my story, which, with variations, is the story of hundreds of  
17 thousands of my East End neighbours and of millions of my brothers all over the  
18 country, you will begin to understand'.<sup>70</sup> He believed he spoke for everyman.

19 And in the end, even committed sceptics will be haunted by the images. Who  
20 could forget William Arnold, cold and lonely little farm worker, weeping for his  
21 mother, or Edward Rymer, without food, shoes, or light in his first shift in the  
22 mines, finding solace in the words of an ancient hymn and a few sweet crumbs?  
23 Who did not understand John Bezer's fear of a father hardened if not brutalized by  
24 beatings, death, and killing? Who did not smile at John Shipp's bold exuberance as  
25 he 'strutted up' to the sergeant and volunteered as a 'sodger' while fearing too for  
26 his future in those bellicose times? Whose sympathy was not aroused by Bill H's  
27 desperately optimistic attempt to cook the frozen turnips? These images reek of  
28 authenticity and reinforce each other like the parts of a symphony, 'with variations'  
29 as Will Thorne said, summarizing the experience of a whole generation. These  
30 children bore many of the social and economic costs of the industrial revolution  
31 but they also contributed to its success and thereby through time to our  
32 own comfort and prosperity. Their part in this great historical divide merits  
33 remembrance.

34  
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38

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41 <sup>69</sup> See Vincent, *Bread, knowledge and freedom*, p. 5.

42 <sup>70</sup> Thorne, *Life's battles*, p. 13.

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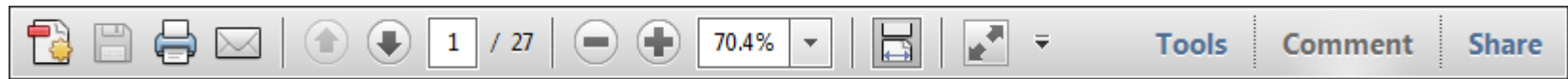
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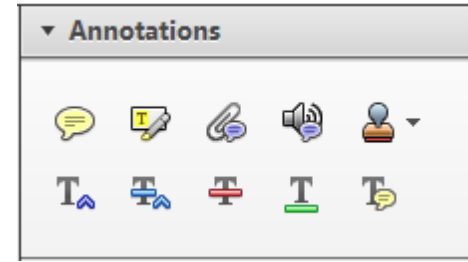
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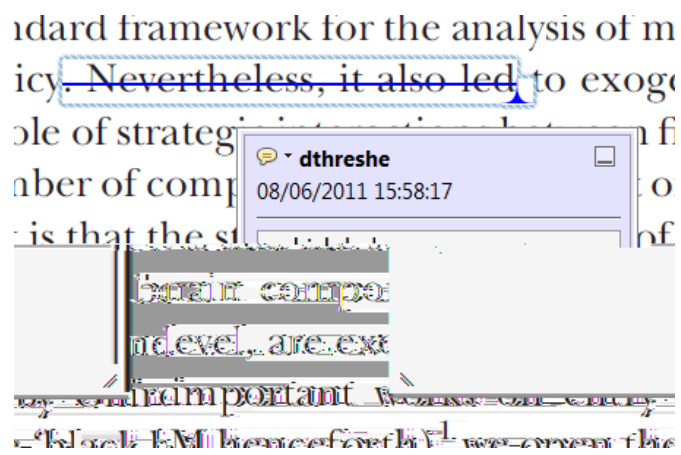
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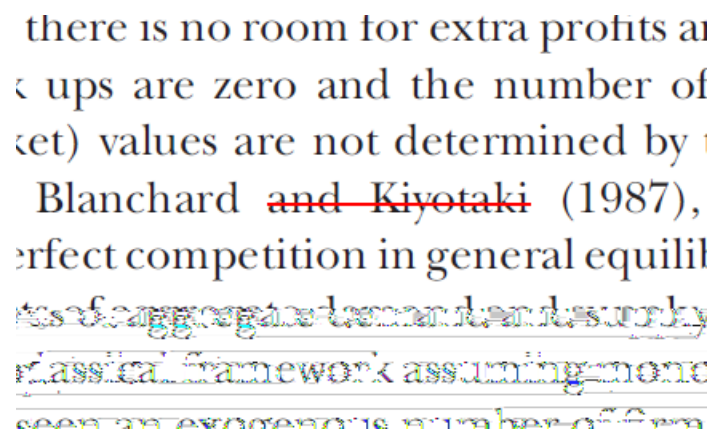
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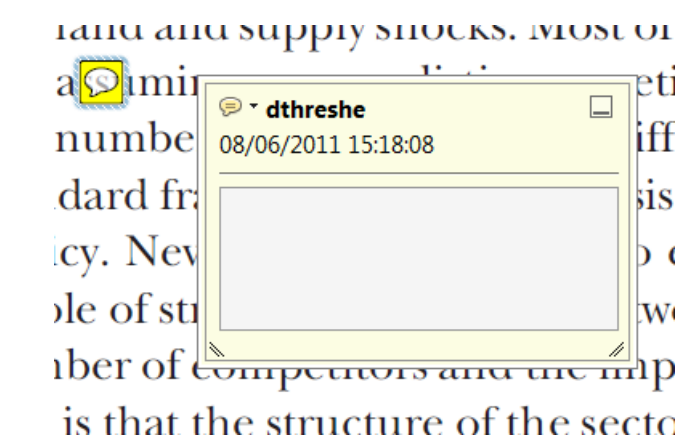
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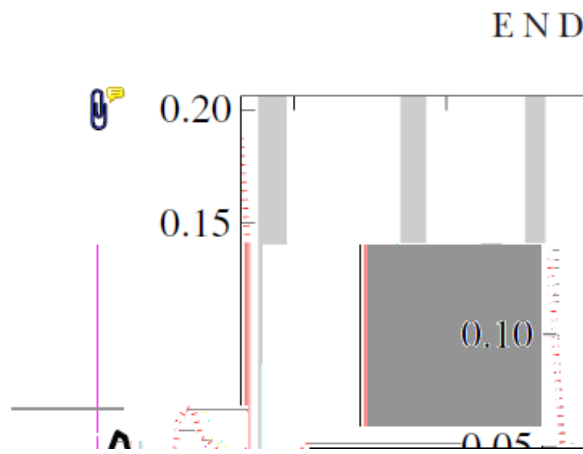
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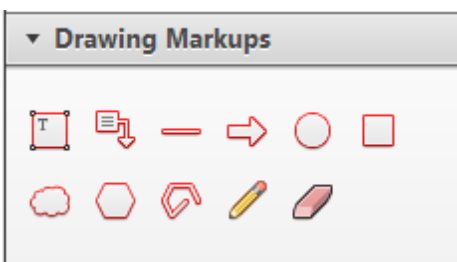


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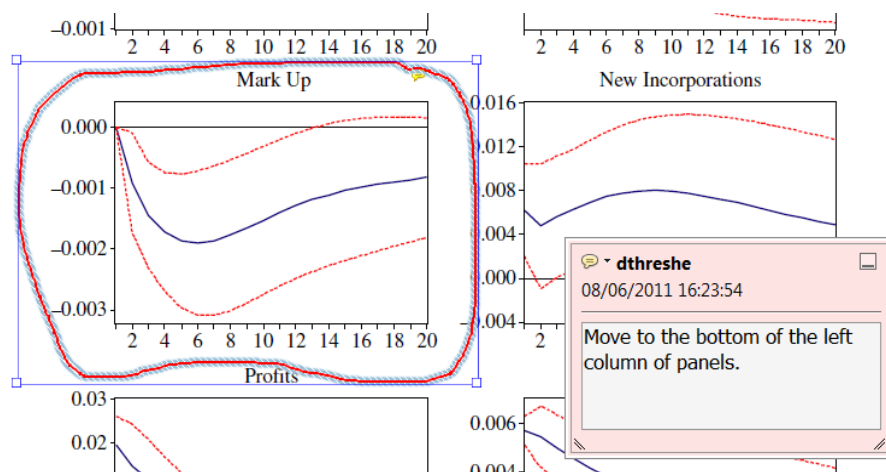


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