RE-CONSIDERING MANAGERIAL USE OF CHILD LABOR: LESSONS FROM THE EXPERIENCE OF NINETEENTH CENTURY AUSTRALIA

INTRODUCTION

Child labor has long been regarded as one of the most undesirable features of industrialization. Countless official enquiries, international conventions, community meetings and academic studies have condemned the practice as exploitative and morally repugnant. Yet, in 2009, it is estimated that 218 million children remain at work globally (Akin, 2009: 53). The pervasive and apparently universal nature of the child labor phenomenon has caused even some of its harshest critics to assume that it is in many ways a necessary evil, whose effects can be mitigated but not avoided (Hindman, 2002; Hindman and Smith, 1999, Rahikainen, 2004). As Hindman and Smith (1999: 26) conclude, "Every advanced industrialized nation has gone through a period of heavy use of child labor". If child labor has proved a persistent and pervasive phenomenon it usage remains, in many ways, paradoxical. For while the use of children in Britain's early nineteenth century factories was advocated in 1835 as a model of efficient managerial practice by David Ure (Ure, 1967: 20), its detrimental effects on economic productivity were soon identified. Alfred Marshall, in his famed treatise on economics, condemned the "grievous" practice of child employment for adversely affecting "the efficiency of the working population" (Marshall, 1932: 14). By most rational economic criteria the virtues of child labor are problematic with its low cost being offset by low productivity and limited work capacities. As Cunningham (1990: 146) observes in his study of industrializing England, young children have invariably proved a dubious asset for employers, lacking in mobility, strength and endurance.

In recent decades the global persistence of the child labor problem has provoked a shift in research as both academics and governments search for its root economic and social causes, rather than simply engage in descriptive accounts accompanied by moral outrage. A number of causal factors have been identified: the low wages of child labor (Hindman and Smith, 1999; Thompson, 1968), the limited productivity needs that characterized initial periods of national industrialization (Rahikainen, 2004; Kirby, 2003), a plentiful supply of youthful job seekers driven by family poverty (Basu and Van, 1998; Bar and Basu, 2009; Nardinelli, 1990) and inefficiencies in labour and credit markets that could have supplemented family incomes (Dumas, 2007). The identification of different causal factors invariably leads to different suggested policy responses as a way of eradicating the child labor problem. What is, however, sometimes overlooked in this debate is the uneven and highly variable usage of child labor even during peak periods of industrialization. In his detailed analysis of industrializing Britain, Clapham (1967: 467, 469) noted that while mere "babes" were employed in some industries, others (such as Lancashire's engineering works) engaged "only a handful". In London, he observes, there was "never ... much regular work for children under ten or twelve". Cunningham (1990: 144-46), drawing on a detailed analysis of the English and Welsh census of 1851, reinforces this point, concluding that there was, at this time, "in no sense a national labour market for children". Instead, there were marked variations in the usage of child labor "even within parishes". The vast majority of children did not work at all. Only 36.6 per cent of males and 19.9 per cent of females aged between 10 and 14 years were employed in 1851. In the United States a similar picture emerges. In 1900, the year in which the number of child workers peaked, only 21.6 per cent of those aged between 10 and 14 were engaged in the non-agricultural workforce (Hindman, 2002: 31). Such patterns continue to be a feature of modern industrializing societies. In a recent study of Turkey, Aikin (2009: 55) found that only 10.2 per cent of those aged between six and 17 years were economically active.

Previously, studies of child labor, in attempting to provide for more effective policy responses capable of eradicating the phenomenon, have focused on the factors that have contributed to the usage of child labor in industrializing societies. This article, however, in examining the experiences of late nineteenth century Australia asks the alternate research question: What are the factors that cause managers to desist from the use of child labor during periods of initial industrialization, even where the society is characterized by a youthful demography and low levels of manufacturing productivity? While the answer to this question has a general application, it is of particular significance for late nineteenth century Australia with it being argued that the decision by most Australian managers to desist from engaging child workers, and even adolescents, largely reflected the peculiar national pattern of investment. In particular, Australia differed from other nineteenth century industrializing nations in that both its rural and mining sectors were highly capitalized, export-oriented affairs, providing few vacancies for young, inexperienced workers. Moreover, much of the nation's manufacturing sector, while characterized by low productivity, required skilled and / or experienced adult workers capable of fulfilling its primary role - servicing the transport, mining and rural sectors that were the principal drivers of economic growth. This outcome suggests that countries, or regions within countries, that have a highly commercialized primary sector and manufacturing establishments with high skill requirements (even if characterized by low international productivity) will demonstrate a low incidence of child labor. The inevitable policy implication is that the best strategy to overcome child labor is one directed towards enhancing capital investment in the primary sector and the need for enhanced skills in the secondary sector, rather than legal restrictions on employment of children.

The Causes of Child Labor: an ongoing debate

To date the debate on the causes of child labor has been posited within two broad frameworks, one emphasising the demand for child labor and the other the factors that cause children and their families to supply this demand. Each perspective provides the basis for differing approaches to dealing with the child labor phenomenon. Historically, most attention has been paid to those factors that underpin managerial demand for child labor. Writing in 1920 the Webbs (1920: 766-67, 849) referred to child labor as simply "industrial parasitism", produced by low-productive trades dominated by "small masters" and "armies of working sub-contractors." Much subsequent research has reaffirmed such observations, linking child labor to both its supposed cost advantages and low productive sectors such as domestic service, family farming, small-scale workshops and retailing (Cunningham, 2000; Kirby, 2003; Hindman, 2002; Hindman and Smith, 2009; Aiken, 2009; Dumas, 2007). Theoretically, what is harder to explain is the mass employment of children in highly capitalized industries such as textiles. Given the relatively high level of investment made, the use of low productive labor appears a dubious managerial decision, exposing operations to inefficiency and break-downs. This conundrum has been partly explained by reference to the "two-tier" labor practices of early factories, in which children effectively operated as assistants to adult workers. As the productivity of factories rose the demand for child labor began to disappear (Kirby, 2003; Rahikainen, 2004; Hindman, 2002). Pollard (1965: 165), however, argues that the main managerial benefit of child labor when dealing with a workforce unaccustomed to the rhythms of industrial life was not its cheapness (in early nineteenth century England children often had to be hired from orphanages at no mean cost) but its pliability. Children may have lacked the efficiencies of adult labor but they were dutiful.

The perception that child labor is driven, primarily, by managerial demand suggests that the problem can only be curtailed by reducing this demand. Traditionally, it was believed that this was best achieved through legislative restriction and compulsory schooling. The merits of this approach are, however, now much debated, it being suggested (Kirby, 2003: 132) that the "role of state legislation and education in regulating or eradicating child labour ... has been greatly overstated." It is widely recognised that, in the United States and Britain, the changing labor needs of industry meant that child employment was already in decline before effective restrictive legislation was passed (Hindman, 2002; Raikainen, 2004; Cunningham, 2000; Hindman and Smith, 1999). It is also argued (Doepke and Zilibotti, 2009) that proposals such as the United States Harkins Bill of 1992 - which sought to impose legal sanctions on nations and firms that utilized child labor - are counterproductive, hindering both economic development and the emergence of anti-child labor policies at the national level. Nevertheless, the view that legislative restrictions are central to the campaign against child labor retains much support. Hindman (2006) contends that the persistence of child labor in the United States after 1900 partly reflected a failure to pursue the problem with sufficient regulatory vigor. Aiken (2009) attributes the large decline in the incidence of child employment in Turkey between 1994 and 2006 to a toughening of legal restrictions that were implemented as part of that country's campaign for European Union membership.

If, historically, child labor was primarily regarded as a demand-driven phenomenon, in recent decades much attention has focused on supply factors such as demography, poverty and family-income choices. Underpinning much of this research are some simple premises. Societies

characterized by a youthful demographic will experience higher levels of child employment than those where the median age is older (Cruickshank, 1981; Cunningham, 1990, 2000; Aiken, 2009). Increases in family wealth, and a diminution in poverty levels, will result in households electing to withdraw their children from the labor market (Goldin, 1979; Nardinelli, 1990; Basu and Van, 1998; Basu, 1999; Basu and Tzannatos, 2003; Bar and Basu, 2009). Accordingly, policies that result in lower fertility rates, increased household wealth and lower levels of poverty should be associated with lower levels of child employment. Unfortunately, the correlation between supply factors such as demography and the actual incidence of child labor is by no means clear. By the mid-1820s, children made up a clear majority of England's population. But relatively few of these made it into paid employment (Cunningham, 1990: 149). The belief that increases in household wealth and reduced poverty will lead to a fall in child employment is also debated. Bhalotra and Heady (2003) and Dumas (2007) suggest that in the agricultural sector (typically a major employer of child workers) increases in landed wealth are associated with an increase, rather than decrease, in child work. In responding to such findings, Bar and Basu (2009: 496-97) acknowledge that the "first-generation" effect of increased landed wealth will be an increase in child labor, even if subsequent generations witness a reversal in this trend. They therefore suggest that the best policy for reducing the incidence of child labor involves "drawing labor away from agriculture into manufacturing and services."

While both the root causes of child labor and appropriate policy responses remain the subject of much debate it is nevertheless difficult to avoid two conclusions. First, the incidence of child labor in any nation or region will reflect the complex interaction of many factors in ways that are likely to lead to considerable local variation. Second, of all the factors that shape a society's

usage of child labor it would appear that managerial demand is preeminent. For in the absence of effective demand even the most abundant supply will go unutilized.

METHOD

While the study of child labor in Australia remains in its infancy the studies that have occurred have come to markedly different conclusions depending on the methodology used. Most studies have been qualitatively based, relying heavily on various colonial inquiries, newspaper accounts or personal reminiscences. Studies reliant on such methodology (Markey, 1988; Walsh, 1971, Murray, 1993) have invariably concluded that the phenomenon assumed major proportions during the late nineteenth century. Walsh (1971), for example, observed that, "Child labor under bad conditions was a feature of factory employment in the second half of the century." Robinson (2002, 2003, 2007) also contends that the employment of Aboriginal child workers, many of whom were obtained under circumstances akin to kidnapping, was a popular practice among landowners located in the pastoral interior. The problem with such research is that it cannot give us an accurate guide as to the magnitude of the Australian child labor problem. Thus, while Robinson (2007: 3, 169) states that male Aboriginal child workers were "predominately" employed in the pastoral sector she also notes that only 244 child workers were actually recorded as working in Queensland (Australia's preeminent pastoral state) between 1842 and 1945. Certainly the perception that child labor was commonplace in late nineteenth century Australia sits at odds with the findings of Larson, who used colonial censes to ascertain the use of child labor in Melbourne, Australia's largest nineteenth century metropolis. She concludes (Larson, 1974: 92, 147) that around the century's end "there was relatively little employment opportunity for children under 13 years" while "the ages between 13 and 15 were a time of relative freedom."

This study believes that while both quantitative and qualitative methods are required to explain the child labor phenomenon, we must begin any study with a quantitative analysis, for it is only through such an approach that we can ascertain the magnitude of the problem. Once this is determined we can then use qualitative research (employer and worker testimony, accounts of the operational conditions applying in various industries, official reports) to explain the results obtained. In exploring the extent to which managers utilized younger workers this paper therefore beings by examining the 1891 and 1901 census figures of Queensland – the third largest colony / state (prior to 1901 the Australian states were separate self-governing British colonies) – to identify the extent of both child (those aged under 14 years) and adolescent (those aged between 14 and 19 years) labor.

There are a number of reasons for paying special attention to Queensland. First, in terms of size it lay midway between the two largest colonies (New South Wales and Victoria) and the smaller colonies of South Australia, Western Australia and Tasmania. Second, Queensland's population was younger than that found elsewhere in Australia (Queensland Registrar-General, 1887). As a result, it suffered from a growing shortage in prime aged adult males (those aged between 20 and 30 years). By 1901, only 17.6 per cent of the male population were in this age cohort (Queensland Registrar-General, 1902). Given this demographic shift we could reasonably expect that managers would respond by engaging younger workers. In addition, manufacturing employment in Queensland grew at a much faster rate than occurred elsewhere in Australia, more than doubling between 1888 and 1899. According to most research, such industrial expansion should have been associated with a growth in child labor.

The study has chosen the years 1891 and 1901 for two principal reasons. First, it was in this decade that the Queensland age profile was at its youngest. As was the case with the rest of Australia, the population aged rapidly after 1900 due to a "spectacular decline in the Australian".

birth-rate" during the 1890s (Hicks, 1978: xv). It also makes for a useful comparison with the United States. Studies in both Australia (Sinclair, 1982) and the United States (Hindman, 2002; Yoder, 1933) have suggested that child labor in both countries peaked during this decade. Empirically, this research differs from other studies due to its inclusion of all those who are recorded as active in the workforce, rather than simply looking at those who worked in the non-farm sector. The analysis also differs from much previous research by recording the participation rates for those aged between 15 and 19 years, as well as those aged less than 14 years. This allows a fuller understanding of the extent to which Australian managers employed younger workers as an alternative to adults.

RESULTS: PATTERNS OF CHILD AND ADOLESCENT EMPLOYMENT IN QUEENSLAND (AUSTRALIA), 1890-1900

In common with other Australian colonies, Queensland was, in the closing decades of the nineteenth century, a dynamic and rapidly growing society. Between 1891 and 1901 the population grew by more than a quarter, from 393,718 to 503,266. The rapid advance in population was underpinned by strong economic growth. While Queensland's (and Australia's) competitive advantage lay in its pastoral and mining sector it nevertheless witnessed a surge in manufacturing employment, which grew from 13,857 in 1888 to 28,883 in 1899. Again, this was part of a nationwide trend with Butlin 1972: 182) noting that Australian manufacturing "grew at an extraordinarily rapid pace" during the closing decades of the century. Reflecting its immigrant nature, Queensland's population was characterised by its youth. As Table 1 indicates, 46.2 per cent of the population was aged 19 years or under in 1891. The vast majority of these youngsters (amounting to 37.2 per cent of the Queensland total) were under 15 years of age (Queensland Registrar, 1902).

Despite the fact that those aged 19 years or under made up an unusually high percentage of the total population this numeric strength was not reflected in the job market. In 1901 children and adolescents made up only 18.1 per cent of the workforce. The labor force participation rate of those aged 19 years or under was a mere 17.94 per cent. Even if we exclude those aged under 10 the participation level rises to only 36.9 percent. In other words, almost two-thirds of those aged between 10 and 19 years (inclusive) did not work. Of the non-adult workforce very few were actually children (those aged 14 years or less). In 1891 children made up 2.9 per cent of the workforce. A decade later they made up three per cent. Admittedly, there was a slight increase in child labor in the rural sector during this period. But even in 1901 only 3.5 per cent of the rural workforce were children. Moreover, this increase was largely offset by a decline (expressed as a share of the total) in the non-rural workforce (including mining). By 1901 only 2.8 per cent of Queensland's non-rural workers were under 15 years of age. If children occupied only a tiny proportion of all jobs it was also the case that only a relative handful were recorded as being active in the workplace. In 1891 only 3.3 per cent of all Queensland children worked. Ten years later the figure stood at 3.5 per cent (see Table 1 for details).

Insert Table 1 about here

The extremely limited role played by children (those aged 14 years or less) becomes clear when, in Table 2, we consider employment patterns in the main industry sectors – agricultural and pastoralism, industrial (including building), mining, commerce and transport, and domestic service. In the United States, those aged between 10 and 14 years made up 6.5 per cent of the

non-farm workforce in 1890 (Hindman, 2002: 31). In Queensland, even if we include all of those aged 14 years or under, no sector approaches this figure, except for domestic service (where 5.4 percent of the occupational workforce in 1891 were children). In 1891, children made up only 0.7 per cent of the mining workforce, 2.5 per cent of industrial workers (including construction), 2.3 per cent of the agricultural / pastoral workforce, and 4.1 per cent of the workforce in commerce and transport (which included retail). During the ensuing decade the incidence of child labor fell in mining, industrial employment, and (most markedly) commerce and transport.

Insert Table 2 about here

The most unusual features of child and adolescent employment in late nineteenth century Queensland is the low incidence rate in the rural sector, an outcome that runs contrary to both historical and contemporary research which indicates that child labor will invariably be much higher in agricultural and pastoral employment (Cunningham, 1990, 2000; Basu & Van, 1998; Hindman, 2006; Dumas, 2007; Aiken, 2009). In Queensland in 1891, however, children made up only 2.7 per cent of the pastoral workforce and 3.9 per cent of the agricultural workforce. So few young people worked in the rural sector that Queensland's Statistician expressed concern for the industry's "future interest" (Queensland Registrar, 1892: xli). While, by 1901, child employment had increased to 3.9 per cent in the pastoral sector, and 6.4 per cent in agriculture, this was largely driven by one sub-sector – dairying. Children and adolescents made up 55 per cent of dairy "assistants" in this labour intensive, poorly capitalized industry in 1901 (Queensland Registrar, 1902). This sector, however, contributed little to either rural employment or output in 1901. Elsewhere, rural work remained a largely adult preserve. In 1901, 83.7 per cent of the rural workforce was aged 20 years or older (Queensland Registrar, 1902).

Outside domestic service, as Table 2 indicates, children made up a significant proportion of the workforce in only a handful of occupations. In 1891, these were boot and shoe making, printing, textiles, clothing manufacture, food and drink processing, grocery retail, and, in the rural sector, dairying. We should not, however, exaggerate the scale of such employment. Children made up a greater share of the boot and shoe trade than any other industrial occupation in 1891 (8.5 percent), but this amounted to only 149 workers. Similarly, while 12.9 per cent of those engaged as dairy assistants were children in 1891 this involved only 62 individuals (Queensland Registrar, 1892). In three of these occupations – textile manufacture, shoe and boot making, and clothing manufacture – child employment declined both absolutely and proportionately over the next decade. Only printing and dairying witnessed a contrary trend in both regards.

Insert Table 3 about here

If we extend our analysis to embrace all those aged 19 years or under, rather than just children, a very similar picture presents itself. In 1891, there were only six occupations (in addition to dairying) where children and adolescents made up 20 per cent or more of the occupational workforce – domestic service, textile manufacture, grocery retail, drapery retail, printing and pupil teaching. Together, these six occupations provided jobs for 48 per cent of the 19,839 Queenslanders aged 19 years or younger who were active in the workforce. Ten years later these six occupations still employed 36.8 percent of the colony's child and adolescent workers (Queensland Registrar, 1892, 1902). In most areas, however, managers resisted the temptation to offset a demographic shortage in adults by changing their hiring practices. The lack of managerial enthusiasm for younger workers is highlighted by the trend in commerce and transport, where the sectoral share of employment of those aged 15 to 19 years fell from 18.5 to

15.5 per cent between 1891 and 1901. During the same period children (those aged less than 14 years) saw their share of this labor force fall from 4.1 to 3.4 per cent. Outside the rural sector only mining saw a significant increase in the proportion of younger workers employed. Even here, those aged 19 years or younger comprised a mere 7.5 per cent of the workforce in 1901 (Queensland Registrar, 1902). The major growth areas in employment for adolescent workers were in trades associated with apprenticeships (blacksmiths, metal fitters, coach makers and the like). The number of adolescent blacksmiths, for example, grew by 31.4 per cent during the decade. Such occupations remained, nevertheless, adult-dominated. In 1901, more than three-quarters of blacksmiths, and 78.7 per cent of coach makers, were over 20 years of age. Children (those under 14 years) made up only two per cent of the workforce in both these two trades (Queensland Registrar, 1902).

While the above analysis has focused on Queensland the picture in the larger, and more industrialized, states of New South Wales and Victoria appears broadly similar. In New South Wales (the largest state) the Government Statistician recorded in 1901 that there were only 1,473 workers outside the rural sector who were aged 15 years of age or younger (NSW Statistician, 1902). In Melbourne, Australia's most industrialized city, only three per cent of the Melbourne workforce (male and female) was aged 14 years or younger (Larson, 1974).

DISCUSSION: WHY WAS AUSTRALIA DIFFERENT?

To what can we attribute the low incidence of child labor in Australia? The "traditional" explanations – legally imposed restrictions and compulsory schooling – can be dismissed with relative ease. Queensland did not pass its first Factories and Shops Act until 1896. Of the other five Australian colonies only two – Victoria and New South Wales – had passed such enactments by this latter date, and even these were pale imitations of their British counterparts. Compulsory

schooling legislation also appears to have had little significance. Although Queensland introduced compulsory schooling laws in 1875 the compulsory clauses were not proclaimed until 1900. However, few of those who avoided school found gainful employment.

Supply-side theories also do not provide a suitable framework for understanding the Australian situation. A bountiful demographic supply did not create its own demand. This was despite the fact that Australian nineteenth century "compulsory" schooling laws invariably reflected the view that such enactments should not unduly restrict early employment. In South Australia, children were only required to attend school for 142 days per year. Further absences were allowable if a "satisfactory excuse" could be offered, with allowable excuses including fruit picking, harvest work and other rural activities (Wimhurst, 1981). In Queensland, the Government's failure to proclaim the compulsory schooling clauses passed in 1875 also reflected the view that participation in rural work in particular was a healthy part of the education process (Lawson, 1973). Nevertheless, only 96 children under the age of 12 (the last year for "compulsory" schooling) were found among Queensland's 39,980 agricultural workers in 1891 (Queensland Registrar, 1892: xl).

It would also appear unlikely that the supply of children seeking work was restricted due to their families' high household income. Wages for unskilled and semi-skilled labourers in Australia were, generally, higher than in Britain. But the work was also highly seasonal, reflecting the annual movement of pastoral products from the interior to the waterfront. Employment in mining and construction was also highly unstable. This produced a labor market characterized by casual employment, insecurity and substantial social disadvantage (Lee and Fahey, 1986). In such circumstances any additional income would have been welcome. There is certainly plenty of evidence that employers were flooded with applications from children and adolescents desperate for work. Many were so keen to enter the labor market that they commonly

worked for no wages during their first year of employment. In 1896, one Queensland parliamentarian reported that he "did not think there were more than six factories in the city [Brisbane] where anything was paid to those boys and girls" employed (Queensland Parliament, 1896: 2188). However, outside of a handful of trades, few employers exploited this supply.

If there were no obvious factors restricting the flow of potential child workers into the labor market this supply should have met a ready demand, given that most Australian enterprises were small, poorly capitalized affairs However, while it is true (as noted earlier) that child labor in the Australian manufacturing sector was indeed associated with small-scale production that required few formal skills (boot making, clothing manufacture, small printing shops) it is also true that virtually every Australian manufacturing firm fell into this category. Few employed more than 100 workers. During the nineteenth century no Australian colony possessed even one steel mill. Most heavy machinery was imported. Consolidation and investment were curtailed due to the small size of the local market, distance from international markets and internal tariff barriers. Despite such obstacles, however, manufacturing grew in importance, employing between 15 and 20 per cent of the Australian workforce during the 1890s (Linge, 1979; Butlin, 1972). Yet, despite the growth of this (relatively unproductive) manufacturing sector, most managers did not avail themselves of the available supply of child labor. In Queensland, for example, metal and mineral processing was in 1901 the third largest employer of industrial labor. However, only 2.8 per cent were aged 14 years or younger. In the engineering trade the reluctance to employ child workers was even more manifest. Only 0.8 per cent of the colony's 1,137 engineering workers were children (Queensland Registrar, 1902).

If both a plentiful potential supply of youngsters and a manufacturing sector built around low productive enterprises should, according to most accepted theories, have resulted in a high incidence of child labor why did this outcome never eventuate? The key to understanding this result lies in the highly capitalized nature of the Australian primary sector, where geography and climate dictated investment patterns that differed from the overseas norm. The harshness of the climate and landscape limited opportunities for European-style agriculture. Most of the land was better suited for vast sheep and cattle runs than for growing crops. In consequence, rural fortunes from an early point were tied to a highly capitalized pastoral sector rather than to the family farm. In 1886-90 agriculture's share of GDP was a mere 5.8 percent. By contrast the pastoral sector was responsible for one-eighth of Australia's economic output (Butlin, 1976: 22). This made unpaid work on the family farm, and the performance of paid chores on neighboring properties, much less important in Australia than it was in Europe or North America.

Technologically, the key to the extraordinary productivity of the Australian pastoral sector was the large-scale national investment in barbed-wire fencing, which gave comparatively small permanent workforces the capacity to raise vast flocks of sheep and herds of cattle. Between the 1870s and 1890s New South Wales alone laid out more than 2.6 million kilometres of fencing (Glover, 2008: 32). The laying down of this extensive network of fences, which involved back-breaking work in extreme climates, was also little suited to child labor. Few adults who worked in the industry brought young children or adolescents with them. In 1886, Queensland's statistician ascertained that 43.6 per cent of those listed as "sons and daughters" on pastoral properties were over the age of 20 (Queensland Registrar, 1887: 229). Most pastoral work was performed by an army of casually-employed shearers and laborers. During the shearing season (which began in Queensland in February and finished in southern Australia during August), this itinerant workforce moved from one property to another, often walking hundreds of kilometres across the "outback", camping overnight next to creeks, billabongs and waterholes. Few members of this army were children. In 1891, at the peak of the pastoral boom, Queensland

gave work to 8,748 shearers and pastoral laborers. Only 237 were under 15 years of age (Queensland Registrar, 1892).

The impracticability of relying on children and young adolescents was also manifest to those managers engaged in processing pastoral and agricultural products such as meat, animal hides, wool and sugar. While many jobs were associated with the processing of "animal and vegetable products" (in Queensland, this sector was the fourth largest employer of manufacturing labor), managerial decision making was primarily focused on the availability of raw materials and access to transport, rather than concerns about the cost of labor. In Victoria, for example, Geelong (a town to the south-west of Melbourne) emerged as the main processing centre for pastoral products because its water supplies were not covered by anti-pollution laws that bound more populous urban centres (Linge, 1979: 9). Not only did the work in such towns typically demand strength and experience, the nature of life within them also meant that they attracted relatively few women and children.

The relative inhospitality of working life in regional and remote Australia exacerbated a marked disparity between the population structure in the capitals and the rest of Australia, where the bulk of the population resided (in 1891, 65 per cent of the population of New South Wales lived outside Sydney with only 28 per cent of Queenslanders living in that colony's capital, Brisbane). While the capital cities had roughly balanced sex ratios, in the rural and mineral districts the ratio of females to males fell markedly (Lawson, 1973). Families, and children, tended to concentrated in the urban centres, while single males predominated in the interior. Many husbands left their city-based families for months on end to work in the interior. In meat processing, the seasonal nature of work also restricted the employment opportunities for children and adolescents. Most plants shut during the summer, when it was too hot to move animals. As a result, the workforce was built around highly mobile adult "gangs" that travelled between plants

during the peak season, disbanding to obtain work in other industries during the off season (Cutler, 1976).

One characteristic feature of the agricultural and pastoral sectors in northern Australia was its use of non-white labor engaged under conditions that can be described, at best, as semifree. The largest such workforce was composed of "bonded" laborers from the South Pacific. Most of these indentured laborers worked in the Queensland sugar industry, which dominated agricultural production in the colony's fertile coastal districts. However, while these plantation laborers shared some common features with the African-slave workforces of the Caribbean and the American South, there were also some very important differences. Only rarely were whole families engaged. Instead, those hiring the indentured Islanders engaged individuals suitable for the backbreaking work on the plantations. Very few were children. Of the 11,678 recorded as working in the Queensland sugar industry in 1901 (some of whom would have been white overseers) only 48 were under the age of 14 (Queensland Registrar, 1902). The situation with regard to the employment of Aboriginal children in the pastoral interior is less clear, as Aboriginals were not included in the official census. Both Robinson (2002, 2003, 2007) and Reynolds (1990) have suggested, no doubt correctly, that the employment of Aboriginal children as domestics on pastoral properties was widespread. There is also no doubt that the treatment of these children was, considered as a whole, one of the more shameful episodes in Australian history. What is less clear is the magnitude of the problem. In the absence of reliable statistics any definitive judgement is impossible. However, given that the pastoral industry was dominated by a relatively small number of huge "runs" (most of the pastoral workforce were seasonal and were housed with their own cooks in separate sheds), it is unlikely that the total number of Aboriginal domestics would have been considerable, even if the experiences of those enduring such work were often traumatic.

Mining, an industry that directly or indirectly employed one-sixth of the Australian adult male workforce in 1901, was if anything even less suited to child labor than pastoral work. While child labor was a common feature of working life within the British and North American coal industries most Australian miners were employed in "hard-rock" operations. In Queensland, for example, only 7.5 per cent of the mining workforce was comprised of coal miners (Queensland Registrar, 1902). By the 1890s the vast bulk of Australia's gold, copper and lead output came from deep, highly capitalized operations involving the large-scale use of dynamite and mechanical rock-drills. Employment relationships were also complex. By 1901, most mines were staffed by self-employed contractors, tributers (groups of miners who gave the mine owner a share of the proceeds in return for working all or part of a mine), and syndicates. Sharing both profit and risk, these groups of miners would have gained little from sending children deep underground to assist with the packing of dynamite. Any children who were employed would have faced a most inhospitable work environment. The use of rock drills and dynamite produced clouds of silica dust. In Australia, as elsewhere in the world at the time, many miners succumbed to silicosis ((Bowden and Penrose, 2006). As was the case with the rural sector the geographic location of most hard-rock mining operations would have further dimmed any managerial enthusiasm for child labor. At the turn of the century, the most significant Australian mining districts were located in remote semi-desert regions around Kalgoorlie-Boulder in Western Australia, Broken Hill in New South Wales and Charters Towers in northern Queensland. Exposed to extreme temperatures, water shortages and disease, these towns were no place for children (Blainey, 1963).

The employment impact of Australia's highly capitalized pastoral and mining sectors flowed through the economy at large. As noted earlier, seasonal employment was tied to the ebbs and flows of the pastoral industry. The processing of pastoral and mineral products gave work to

a large proportion of the manufacturing workforce. In Queensland, for example, the processing of metal and mineral products in 1901 provided the third largest area of manufacturing employment, giving work to 4,718 employees (Queensland Registrar, 1902). The processing of metal products also helped underpin the growth in the metal trades and engineering more generally. As noted earlier, by the 1890s apprenticeships in the trades associated with the metal industry was the fastest growing area of work for Queensland adolescents (few children were, however, taken on for such training programmes). Servicing the needs of the state-owned railways, which bore primary responsibility for transporting the produce of the interior to the coast, also provided the manufacturing sector with much of its work, both directly and indirectly. Between 1860 and 1890 the major colonial governments spent 60 per cent of all public investment expenditures on the railways (Linge, 1977). Such work required skilled fitters, coach makers, blacksmiths and the like. Railway maintenance work was carried out in state-owned workshops. In every colony, the central railway workshops were the largest manufacturing facilities. In hiring staff the government railways invariably demanded more in the way of formal education and other qualifications than the typical private sector employer. Very few children were employed. In 1891 Queensland's Railway department employed 2,627 staff. None were under the age of 14 (Queensland Registrar, 1892).

There was in Australia, therefore, relatively little work that was suited to child and adolescent labor. This was despite the fact that much of the work was – by world standards – associated with small units of production, low levels of technology and semi-skilled rural labor. In Britain and North America, such an environment was conducive to the employment of children. But in Australia climate and geography conspired to produce different patterns of investment and employment. Whereas, elsewhere, family-based agriculture "always employed the largest number of child workers" (Hindman, 2006: 129) in Australia it was the rural and

mining sectors that were the primary focus of capital investment. Both the construction of the nation's rural, mining and transport infrastructure - and the subsequent operation of the enterprises built upon this investment base - demanded a mobile adult workforce. The flow-on effects of this investment allocation was felt throughout the wider economy. Much of the economy was geared to processing the produce of the interior, or servicing its needs through work that demanded skill and experience. In consequence, despite a surfeit of potential child and adolescent workers, managers largely eschewed opportunities to avail themselves of this form of labor.

CONCLUSION

Late nineteenth century Australia differed from other industrializing economies in that child labor played only a minor role in the process of national development. This outcome occurred despite the fact that Australia had, at first glance, virtually all of the characteristics that are deemed to be associated with high levels of child labor – a youthful demographic, a legal framework that imposed few limitations on child work, a manufacturing sector dominated by small-scale enterprises and an economy heavily reliant on its primary sector. In consequence, the Australian experience challenges many of our assumptions about the causes of child labor, demanding a consideration of the reasons why managers choose not to engage younger workers in circumstances where there is little to stop them doing so.

In drawing lessons from nineteenth century Australia it would appear that the main factor shaping managerial decision making with regard to the employment of children was the structure of the economy. In Australia it was the highly capitalized nature of the primary sector that, more than anything else, set it on a different trajectory to other industrializing nations. Rural work in Australia, in contrast to the family-farm based agricultural sectors of Europe and North America,

provided relatively few jobs for children and adolescents. The highly capitalized mining sector offered even fewer job opportunities for those under the age of 19 (and virtually none for those under 14 years of age). Nor did the Australian rural sector provide the reservoir of youthful job seekers that it did in other industrializing societies. The labor market impact of this highly capitalized primary sector were also felt throughout the wider economy, as many firms engaged in servicing the primary sector demonstrated a preference for adult workers. The Australian experience thus suggests that the most effective policies for reducing the incidence of child labor will be ones that seek to foster increased levels of capital investment in the primary sector, rather than ones directed towards either legal restriction or poverty alleviation. For, if the Australian experience is a guide, where managers perceive that the nature of their business activities means that they have little to gain from the employment of children, then they will abstain from the practice.

REFERENCES

- Aiken, L. (2009), "Working conditions of the child worker in Turkish labour law", *Employment Rights and Responsibilities Journal*, Vol. 21, No. 1, pp. 53-67.
- Bar, T. and Basu, K. (2009), "Children, education, labor, and land: in the long run and short run", *Journal of the European Economic Association*, Vol. 7, Nos. 2-3, pp. 487-97.
- Basu, K. (1999), "Child labor: causes, consequences and cure", *Journal of Economic Literature*. Vol. 37, No. 3, pp. 1083-119.
- Basu, K. and Van, P. H. (1998), "The economics of child labor", *American Economic Review*. Vol. 88, No, 3, pp. 412-27.
- Basu, K. and Tzannatos, Z. (2003), "The global child labor problem: what do we know and what can we do?", *World Bank Economic Review*, Vol. 17, No. 2, pp. 147-173.
- Bhalotra, S. and Heady, C. (2003), "Child farm labor: the wealth parodox", *World Bank Economic Review*, Vol. 17, No. 2, pp. 197-227.
- Bowden, B. and Penrose, B. (2006), "Dust, contractors, politics and silicosis: conflicting narratives and the Queensland Royal Commission into miners' phthisis, 1911", *Australian Historical Studies*, No. 128, pp. 89-107.
- Bowden, B. (2006), "An economy ill-suited to younger workers: child and youth workforce participation in colonial Queensland 1886-1901", *Australian Economic History Review*, Vol. 46, No. 2, pp. 111-29.
- Butlin, N. (1972), *Investment in Australian economic development 1861-1900*, ANU Press, Canberra.
- Clapham, J. H. (1967), An economic history of modern Britain: the early railway age 1820-1850. Cambridge University Press, Cambridge, UK.
- Cruickshank, M. (1981), Children and industry: child health and welfare in north-west textile towns during the nineteenth century, Manchester University Press, Manchester.
- Cunningham, H. (1990), "The employment and unemployment of children in England c. 1680-1851", *Past & Present*, No. 126, pp. 115-150.
- Cunningham, H. (2000), "The decline of child labour: labour markets and family economies in Europe and North America", *Economic History Review*, Vol. 53, No. 3, pp. 409-28.

- Cutler, T. A. (1979), *The history of the Australasian Meat Industry Employees' Union*, Unpublished doctoral dissertation, University of New South Wales, Sydney.
- Doepke, M. and Zilibotti, F. (2009), "International labor standards and the political economy of child-labor regulation", *Journal of the European Economic Association*, Vol. 7, Nos. 2-3, pp. 508-18.
- Dumas, C. (2007), "Why do parents make their children work? A test of the poverty thesis in rural areas of Burkina Faso", *Oxford Economic Papers*, Vol. 59, No. 2, pp. 301-29.
- Glover, I. (2008), "Fence me in", *Outback*, No. 62, pp. 28-45
- Goldin. C. (1979), "Household and market production of families in a late nineteenth century American town", *Explorations in Economic History*, No. 16, pp. 111-131.
- Hicks, N. (1978), "This sin and scandal": Australia's population debate 1891-1911, ANU Press, Canberra.
- Hindman, H. D. (2002), *Child labor: an American history*, M. E. Sharpe, New York, NY.
- Hindman, H.D. (2006), "Unfinished business: the persistence of child labor in the US", *Employment Rights and Responsibilities Journal*, Vol. 18, No. 2, pp. 125-31.
- Hindman, H. D. and Smith, C. S. (1999), "Cross-cultural ethics and the child labor problem", *Journal of Business Ethics*, Vol. 19, No. 1, pp. 21-33
- International Labour Organization. 2004. *Investing in every child: an economic study of the costs and benefits of eliminating child labour*. International Labour Organization, Geneva.
- Kirby, P. (2003), *Child labour in Britain 1750-1870*, Palgrave, London.
- Larson, A. (1974), *Growing up in Melbourne: family life in the late nineteenth century*, ANU Press, Canberra.
- Lawson, R. (1973), *Brisbane in the 1890s: a study of an Australian urban society*, University of Queensland Press, St Lucia.
- Lee, J. and Fahey, C. (1986), "A boom for whom? some developments in the Australian labour market, 1870-1891". *Labour History*, No. 50, pp. 1-27.
- Linge, G. J. R. (1979), *Industrial awakening: geography of Australian manufacturing 1788 to 1890*, ANU Press, Canberra.
- Markey, R. (1988), "The aristocracy of labour and productive re-organization in NSW c. 1880-1900", *Australian Economic History Review*, Vol. 28, No.1, pp. 43-59.

- Marshall, A. (1932), *Elements of economics*, Macmillan, London.
- Murray, M. (1993), "Children's work in rural New South Wales in the 1870s", *Journal of the Royal Historical Society*, No. 79, pp. 226-244.
- Nardinelli, C. (1990), *Child labour and the industrial revolution*, Indiana University Press, Bloomington.
- New South Wales Statistician (1902), *New South Wales Statistical Register*, 1901, New South Wales Government Printer, Sydney.
- Pollard, S. (1965), *The genesis of modern management: a study of the industrial revolution in Great Britain*, Edward Arnold, London.
- Queensland Parliament (1896), *Queensland Parliamentary Debates*, Queensland Government Printer, Brisbane.
- Queensland Registrar (1887), *Queensland Census of 1886*, Queensland Government Printer, Brisbane.
- Queensland Registrar (1892), *Queensland Census of 1891*, Queensland Government Printer, Brisbane.
- Queensland Registrar (1902), *Queensland Census of 1901*, Queensland Government Printer, Brisbane.
- Rahikainen, M. (2004), Centuries of child labour: European experiences from the seventeenth to the twentieth century, Ashgate, Aldershot, UK.
- Reynolds, H. (1990), With the white people: the crucial role of Aborigines in the exploration and development of Australia. Penguin, Ringwood.
- Robinson, S. (2002), "The unregulated employment of Aboriginal children in Queensland, 1842-1902", *Labour History*, No. 82, pp. 1-16.
- Robinson, S. (2003), "We do not want one who is too old: Aboriginal child domestic servants in Queensland, 1842-1945", *Aboriginal History*, Vol. 27, pp. 162-82.
- Robinson, S. (2009), *Something like slavery? Queensland's Aboriginal child workers*, 1842-1945, Australian Scholarly Publishing, North Melbourne.
- Sinclair, W. A. (1982), "Women and economic change in Melbourne 1871-1892", *Australian Historical Studies*, No. 79, pp. 278-291.
- Ure, D. (1967), *The philosophy of management*, Frank Cass, London.

- Walsh, G. P. (1971), "Factories and factory workers in New South Wales, 1788-1900", *Labour History*, No. 21, pp. 1-16.
- Wimhurst, K. (1981), "Child labour and school attendance in South Australia 1890-1915", *Australian Historical Studies*, No. 19, pp. 390-395.
- Webb, S. and Webb, B. (1920), *Industrial Democracy*, Seaham Divisional Labour Party, London.
- Yoder, D. (1933), Labor economics and labor problems, McGraw-Hill, New York, NY.

Table 1 – Queensland Population and Workforce Participation Rates (those aged 19 years and under), 1891,1901#

	1891	1901
Total Population	393,718	503,266
Population aged 19 years or under	181,892 (46.2%)	213,944 (42.5%)
Population aged 14 years or under	146,564 (37.2%)	184,469
		(36.6%)
Total Workforce	166,424	211,994
Total Workforce Aged 19 years or under	28,408 (17.1%)	38,396 (18.1%)
Total Workforce Aged 14 years of under	4,804 (2.9%)	6418 (3%)
Total Rural Workforce	56,365	68,323
Rural Workforce Aged 19 years or less	8,569 (15.2%)	11,135 (16.3%)
Rural Workforce Aged 14 years or less	1,479 (2.6%)	2,424 (3.5%)
Total Non-Rural Workforce*	110,059	143,671
Non-Rural Workforce Aged 19 years or less	19,839 (18%)	27,261 (19%)
Non-Rural Workforce Aged 14 years or less	3,325 (3%)	3,994 (2.8%)
Workforce Participation Rate, Aged 19 years or less	28,408 (15.6%)	28,396 (18.1%)
Workforce Participation Rate, Aged 14 years or less	4,804 (3.3%)	6,418 (3.5%)

[#] Figures in parenthesis represent percentages of total population or workforce;

Source: Queensland Census of 1886, 1891 and 1901.

^{*} Includes mining

Table 2: Child and Adolescent Participation in Key Economic Sectors: Queensland 1891, 1901#

	1891	1901
Mining – total workforce	11,627	16,375
Mining – Aged 15- 19 years	474 (4.1%)	1,231 (7.5%)
Mining – Aged 14 years or less	71 (0.7%)	113 (0.6%)
Industrial (includes Building) - total workforce	47,184	51,716
Industrial - Aged 15- 19 years	6,660(14.1%)	8,935 (17.3%)
Industrial – Aged 14 years or less	1,201 (2.5%)	1119 (2.2%)
Agricultural and Pastoral – total workforce	67,992	68,323
Agricultural and Pastoral - Aged 15-19 years	7,493 (11%)	8,711 (12.7%)
Agricultural and Pastoral - Aged 14 years or less	1,550 (2.3%)	2,424 (3.5%)
Commerce and Transport – total workforce	20,386	34,694
Commerce and Transport – Aged 15-19 years	3,777 (18.5%)	5,382 (15.5%)
Commerce and Transport – Aged 14 years or less	843 (4.1%)	1,169 (3.4%)
Domestic Service – total workforce	20,386	25,210
Domestic Service - Aged 15- 19 years	5,633 (27.6%)	7,167 (28.4%)
Domestic Service – Aged 14 years or less	1,111 (5.4%)	1,419 (5.6%)

[#] Figures in parentheses represent percentages of the total occupational workforce

Source: Queensland Census of 1891 and 1901.

Table 3: Occupations Characterized by Significant Child Employment: Queensland 1891, 1901 #

	1891	1901
Boot & Shoe manufacture – Aged 14 years or less	149 (8.5%)	66 (3%)
Printing – Aged 14 years or less	41 (7.9%)	64 (9.6%)
Textile manufacture - Aged 14 years or less	425 (5.7%)	325 (3.3%)
Clothing Manufacture – Aged 14 years or less	237 (4.8%)	224 (3.3%)
Food & drink manufacture – Aged 14 years or less	119 (5.2%)	158 (2.8%)
Grocery retail – Aged 14 years or less	51 (4.9%)	109 (4.1%)
Diary Assistants – Aged 14 years or less	62 (12.9%)	114 (21.3%)
Domestic Service – Aged 14 years or less	1,111 (5.4%)	1,419 (5.6%)

[#] Figures in parentheses represent percentages of the total occupational workforce

Source: Queensland Census of 1891 and 1901.