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Children as a reserve labor force

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Abstract

Human life history is unique in the great length of the juvenile or immature period. The lengthened period² is often attributed to the time required for youth to master the culture, particularly subsistence and survival skills. But an increasing number of studies show that children become skilled well before they gain complete independence and the status of adults. It seems, as they learn through play and participation in the domestic economy, children are acquiring a “reserve capacity” of skills and knowledge, which they may not fully employ for many years. The theory offered here to resolve this paradox poses that, individually and collectively, children’s reserve capacity for work can be rapidly activated to offset a shortfall in familial resources brought on by crises such as the loss of older family members. Additionally, social forces engendered by war, disease, famine, and economic change may lead to the wholesale recruitment of children into the labor force—with consequent attenuation of the developmental opportunities of an extended juvenility. In effect, humans display a primary life history strategy and an accelerated strategy with a shortened period of dependency. A wide array of cases from anthropology and history will be offered in support of this proposal.

A bio-cultural perspective on childhood

In order to advance a novel argument regarding children’s life histories, it will be necessary to link biological and cultural perspectives—not always comfortable bed-fellows. In our surveys of

the ethnographic record, we find that biological phenomena over the life course may serve as the building blocks for corresponding cultural models of the life span. For example, as helpless, speechless, dependent infants are usually accorded a liminal, not-fully-human status, societies select from an array of biological markers (e.g., locomotion, speech, control of emotions) in determining the onset of personhood or human-ness (Lancy 2014a). The period referred to as middle childhood or the juvenile stage is marked by physiological (e.g. adrenarche: see Campbell 2011) and cognitive changes, which may trigger patterned and stable responses, such as a heightened expectation of modesty and the assignment of greater responsibility (Lancy and Grove 2011a). In a comprehensive review of the ethnographic literature, we found a consistent pattern of stages or phases in cultural models of the life span (Grove and Lancy forthcoming), which correspond closely to biological anthropologists' partitioning of human life history (Bogin and Smith 2012: 521).

A Life History perspective on the life span implies a concern for the trade-offs that arise when resources are scarce and individuals have competing interests. Is the organism channeling resources to survival, to growth, to reproduction or, to the care of family, including offspring? In fact, "many, if not most, organisms are capable of slowing down or speeding up their life histories, depending on environmental conditions" (Kaplan and Lancaster 2003: 173). Human life history is easily distinguished from other mammals on the basis of, among other characteristics, a shortened period of nursing, a long period when the mother's care is supplemented by others, and a long period of growing cultural competency but as yet limited physical growth. More specifically, in early infancy, the newborn's development is an extension of the gestation period (sometimes referred to as the 4th trimester). Many societies explicitly treat childcare during this stage as replicating the experience of the womb. During the latter part of

infancy, the child grows rapidly in size and passes many developmental milestones. It is incorporated into the family and community, who assume responsibility for its care.

Early childhood begins with weaning and overall independence from the mother and father. The child can consume “regular” food, can walk independently and its behavior can be managed through speech. The child is eager to participate and emulate the behavior of others, but its actual contribution to the communal effort may be limited. From about the ages of 5-7, depending on the society, children enter middle childhood, where they come to be relied upon to carry out a variety of chores, “paying back” their caretakers. They are viewed as having acquired common sense and dependability. However, they are still quite small, may not be fully dexterous, and are still developing socially. Adolescence varies in length but consistently involves rapid growth to mature adult size (and competency) and the development of the means for sexual reproduction. Recent neuroimaging studies indicate tremendous development in the frontal cortex during adolescence and these changes are associated with “the ability to make plans, multi-task, inhibit inappropriate behavior [enhanced] self-awareness and understanding other people” (Blakemore 2007: 85; see also Khundrakpam et al 2013: 2072). The adolescent stage may have “evolved to provide the time to practice complex social skills for effective parenting” (Bogin and Smith 2012: 406).

Culture and biology aren't always in perfect congruence. The curtailment of childhood that capitalizes on children as potential workers may be foreshadowed by earlier attempts to “accelerate” children's development. Most common is early weaning and separation from the mother's full time care, which can occur as early as 6 months (Sellen 2001: 236). The use of specific exercises to accelerate development of the child's motor skills is also common: The agrarian Nso claim that “A standing baby...makes less work for the mother” (Keller 2007: 124).

!Kung foragers accelerate sitting, standing and walking because “in the traditional mobile subsistence pattern...children who cannot walk constitute major burdens” (Konner 1976: 290). Socio-emotional development is often “pushed” through various training routines to increase the child’s awareness and respect towards others, control of emotions and prosociality—particularly sharing (Lancy 2014b: 187-191).

For purposes of the arguments I will make, a broader definition of *child* is required. From the ethnographic record, a reasonable generalization is that infancy ends and childhood begins when the child can be “useful” (Baxter and Butt 1953: 47). This implies a suite of attributes including self-locomotion, an awareness of others, speech, *Theory of Mind* (Wellman, Cross and Watson 2001), and the willingness and ability to be helpful (Rheingold 1982)—such as running errands (Lancy 2012: 29-31). And a consensus exists, which points to puberty as the end of childhood. That still leaves considerable variability in the transition point, considering, for example, that menarche occurs as early as twelve in those who enjoy ready access to calories and as late as eighteen for those who don’t (Eveleth and Tanner 1990). In Cunningham’s survey of children’s employment in the UK, he identifies—based on historical census criteria from the mid-19th century—fifteen as the threshold age below which the individual was considered a child (1990: 118). In the following, *children*, will be those no older than fifteen.

The extended period of juvenility and learning to make a living

Various arguments have been advanced to account for the extended period of juvenility. These include:

- The proposal that a longer life span and lower adult mortality rate reduce the risks of delayed reproduction (Charnov and Berrigan 1993).
- Bogin's (2009: 569) reproductive fitness hypothesis focuses on early weaning in humans and the transfer of their care to other family members, freeing up the mother to bear another child.
- The idea that youth are acquiring "embodied capital" in the form of size, strength, dexterity, immunities and will, therefore, have the reserves to reproduce more often over a longer period (Kaplan and Bock 2001).

However, a widely accepted hypothesis—not incompatible with these others—is that the prolonged period of dependency and consequently delayed onset of puberty and mating enable a sheltered learning environment. The human adaptive model is seen as requiring the gradual acquisition of a large repertoire of increasingly more challenging skills (Kaplan *et al.* 2000: 156). The implication is that children must be busy learning these survival skills for *years* prior to mastery. However, a rapidly accumulating series of studies (Lancy 2014b: 278-279) show what we might call precocity in learning subsistence skills, particularly foraging. Many of these studies systematically measure the time children spend in learning and their productivity is measured in kilocalories of food acquired. The Birds' work on Mer Island in the Torres Straits is representative:

Four-year old children...don't really forage: they have knowledge of appropriate reef prey, but they are easily distracted and spend time pursuing items that are inedible or associated with extremely low foraging returns. They are also extremely slow and tire easily when the

substrate is difficult to negotiate...they may play the role of retriever in picking up [mollusks] spotted by adults...The learning process involves little or no direct adult instruction. [Rather, by foraging] in groups with older children, observing intently their prey choice and processing strategies...*by age six, children have become fairly efficient foragers* (D. W. Bird and R. Bliege Bird 2002: 291). Children begin spearfishing with toddler-sized spears as soon as they begin walking [and those] that choose to invest in spearfishing practice *reach the same efficiency as the most practiced adult by ages ten-fourteen* (R. Bliege Bird and D. W. Bird 2002: 262 – emphasis added).

The Birds conclude: “How much experience do Meriam children need before they become efficient reef foragers? Evidently very little” (D. W. Bird and R. Bliege Bird 2002: 291). Other studies with similar findings include these: young Martu children hunt (and survive on) goanna lizards (Bird and Bliege Bird 2005); Hadza four-year-olds gather (and eat) large quantities of baobab fruit (Blurton-Jones et al 1997); Zapotec children have a “precocious” command of ethnobotany (Hunn 2002); Ache girls match adult women’s foraging returns by the age of ten to twelve (Hill and Hurtado 1996: 223); Samoan ten-year-olds can fish successfully using a variety of methods (Odden and Rochat 2004: 45); “the knowledge and skill necessary for effective hook and line, net, and bow fishing seem to develop rapidly [in Yora children] (Sugiyama and Chacon 2005: 257);”

Figure 1 Matses (Ecuador) Children Fishing with a Net

!Kung boys are considered successful hunters and have been feted for bagging their first large mammal at least ten years before they marry (Shostak 1981: 84); “If need be...Aka ten-year-

olds have the skills to make a living in the forest” (Hewlett and Cavalli–Sforza 1986: 930) and; Kutenai boys at ten are able to bring down a bison calf with bow and arrow (Dawe 1997: 307)³.

These findings are particularly striking in view of the widely accepted claim that, all other things being equal, forager children are recruited much later to the household labor force compared to the patterns observed in other subsistence systems such as herding or horticulture (Hames and Draper 2004; Hewlett et al 2011). Indeed, we have ample evidence that children can be capable farmers (Polak 2011: 158) and herders (Gielen 1993: 426) at nine.

Figure 2 Bara (Madagascar) Herdboy

However, a systematic survey of children’s contribution to subsistence among a range of societies throws some doubt on the “privileged” forager child: Children’s work effort varies with factors other than whether a child is a forager, agriculturalist or pastoralist *per se*” (Kramer and Greaves 2011: 308). In fact, children’s work effort is highly variable, not just across cultures and subsistence systems. It varies historically, as well, as numerous studies have documented the virtual demise of “chores” in the lives of children living in the contemporary global white-collar population (Fasulo, Loyd and Padiglione 2007). Children’s work, like adult’s, is highly gendered. An extremely consistent finding of ethnographic and observational studies is that girls begin to make a significant contribution well before boys do (Lancy and Grove 2011a)—the Pumé, a notable exception (Kramer and Greaves 2011: 317). And lastly, family composition governs the demand for children’s contributions. A daughter who’s the youngest of three will have a lighter load than the eldest of three (Whiting and Pope–Edwards 1988: 173).

These studies weaken the assumption that a lengthened childhood is essential to learning subsistence skills (Blurton–Jones and Marlowe 2002: 199). While humans take many years to reach physical maturity, brain growth—critical for learning one’s culture—is essentially complete by age seven (Bogin 1999: 130).

Children as players and helpers

There are at least two reasons to account for our failure to recognize young children’s underutilized capacities. Firstly, anthropologists, in observing children, describe, in most cases, a life filled with play (Lancy 1996; 2014b; Whiting and Whiting 1975). An understanding that play might be critical in children’s skill development is fairly recent (Bock and Johnson 2004). Ethnographic accounts are accumulating, however, showing children learning to use tools through play—including toddlers wielding sharp knives (Howard 1970; Whiting 1941). Aka mothers, for example, express regret when their little ones cut themselves while playing with knives, but they don’t want to restrain their exploration and learning (Hewlett 2013: 65–66).

Figure 3 Matses (Ecuador) Boy Learning to Use an Ax

Another fertile source of learning opportunities occurs through make-believe. In the village, make-believe is ubiquitous, an important component of children’s care of their younger siblings (Gaskins, Haight, and Lancy 2007), and it tracks very closely what children observe every day (Lancy 2014b). Bock (2005) carried out systematic studies of the relationship between play and work in several Botswana communities engaged in varied subsistence pursuits. Children’s play closely mirrored subsistence skills in greatest demand in their community and play—using a mortar and pestle, for example—was related to later productivity. As children are playing, the

skills they are developing may be overlooked or discounted (Little 2011: 156). In fact, as Weisner (1989: 78) shows for the Abaluyia, children are largely ignored except when they are being helpful and productive. In the majority of societies, while girls remain in fairly close proximity to their mothers, boys—in a cohort—tend to roam more widely. In many cases they will be engaged in “playful” hunting. It was only by accompanying Hadza boys on their rambles that Crittenden was able to discover that they were acquiring a significant amount of small game, which went unnoticed in the camp because they tended to consume it on the spot (Crittenden et al 2013: 303; see also Odden and Rochat 2004).

Closely related to the notion that children at play are flying under the radar as far as the display of competent performance is the frequent observation that children are learning largely through their participation in family activities, including work (Rogoff et al 2003). A key factor in the ease with which children learn socially is that *culture* is freely displayed. The “curriculum” confronting a child in the village is not concealed behind doors, in books or in people’s heads. “No [Tallensi] would inhibit his conversation or actions because children are present” (Fortes 1970: 37). Similarly, Biyaka children, who must learn a mix of foraging and gardening skills

have almost ubiquitous opportunity for observational learning of adult subsistence behaviors. Furthermore, “watching,” a behavior that is necessarily the commencing act of any visual observational learning, was a very high-frequency activity across all age groups (Neuwelt-Truntzer 1981: 109).

Obviously good observers (Gaskins and Paradise 2010: 104), children are also cited as displaying an “interactional instinct” (Lee et al 2009: 5) and behaving like “imitation machines” (Tomasello 1999: 52). As soon as they can command a degree of self-control, children are

seamlessly integrated into various family routines where they are expected to deploy these instincts to their own benefit and, eventually, to serve the needs of family (Kramer 2011: 537). Kramer (2014: 52) argues quite persuasively that life history scholars have focused overmuch on the costs of dependent children and ignored the enormous benefits they provide their mothers and families as “helpers.” However, while children are welcome to “pitch in” (Paradise and Rogoff 2009) with simple tasks such as fetching and carrying, their active participation in more challenging assignments is not always applauded. Their clumsy attempts may be rebuffed for a variety of reasons (Lancy 2014b; Little 2011; Michelet 2013). They may not be considered sufficiently competent to look after an infant; to handle fragile implements or precious commodities (e.g. knocking over a mortar and spilling the grain out); to carry out the task without the assistance of a more competent but too busy person; to assist without disrupting or damaging the work of others; to trudge on the long, arduous trek in search of food or to and from distant gardens; or to do the task without injury to themselves or someone else. They might not be the “right” gender, or there may be an older sibling who’ll complete the task more quickly. The pattern of children volunteering and then being rebuffed is codified by communities occupying the Tapajós river region of Brazil in the Portuguese expression “*Tu garante?*” Basically, a child wishing to display a formerly unacknowledged skill is challenged to guarantee a competent performance, failing which it will be mocked and teased—even by its own mother (Medaets, 2013). However, rebuffed children typically redouble their efforts to become fully competent (Gladwin and Sarason 1953: 414-415; Reichard 1934: 38)

There may, therefore, be a growing gap between the skills children are seen to practice publicly and skills they’ve acquired through play, observation and diligent practice. From an early age, children acquire a level of skill in child care, domestic service, food processing, crafts, foraging and the like that they may not fully capitalize on—and this is particularly true in some foraging

societies (Hewlett and Hewlett 2013: 77) such as the Aka and !Kung⁴. Still, individual cases of voluntary self-provisioning are reported for both the Aka (Boyette 2013: 88) and !Kung (Howell 2010: 30). Under pressing circumstances, then, skilled but unproductive children might rapidly ratchet up their productivity by executing efficiently those skills they've been perfecting through playful work and practice (Lancy 2014b). This gap forms the foundation for an argument that children in a family or community function as a *reserve labor force* that can be called into service.

The shift from helping to working.

If children are being rebuffed for volunteering prematurely, it follows that they will readily step up when the opportunity is offered. And ethnographers often note the eagerness and enthusiasm of child helpers whether it is caring for a younger sibling, tending goats or assisting with the evening meal (Barlow 2001: 87; Danielsson 1952: 121; Evans–Pritchard 1956: 146; Ottenberg 1968: 80). In addition to routine chores, there is evidence of more short-term or contingency-related “special assignments.” An older daughter will welcome the opportunity to alloparent a new sibling as the nursing mother shifts many of her burdens on to other family members (Casimir 2010: 24; Henry, Morelli and Tronick 2005: 202; Read 1960: 82).

Figure 4 Thai Sibling Carer

In times of peak labor demands, more is asked of children. In rural China, schools were *dongzxue*, or winter schools, because children did farm work the rest of the year (Bai 2005: 25). During rice harvest season, Tsimané boys are more likely delegated domestic chores as their sisters assist with the harvest (Stieglitz et al 2013: 237). On Victoria Island, Inuit boys who are

first or early-born “produce more meat than later-born males [and] provide significant amounts of food to their parent’s larders” (Collings 2009: 370). Baining adolescents “are called upon to contribute to collective work parties, where a big job is done in one day” (Fajans 1997: 93) while Javanese youth are expected to work during the harvest and their labor may be donated to a collective undertaking such as clearing irrigation ditches or house-raising (Jay 1969: 35, 69).

Variability in production by children is not simply a function of age or ecology but reflects individual motivation and family dynamics, such as a parent’s disability or death⁵ (Polak 2011: 142; Bass 2004: 83; Sugiyama and Chacon 2005: 237; Williams 1969: 113). In a study of Hadza children’s foraging, the investigators note that some children appeared to be “far more productive than their age-mates.” Two sisters, ages 10 and 6, are described as follows:

[they had] uncharacteristically high returns...both parents are unable to routinely collect enough food to successfully provision their household; their father has a severe debilitating injury from falling into a fire as a young man and their mother is developmentally disabled. The two sisters were not only able to provision themselves, but also shared their foraging yield with their younger brother, parents, and occasionally grandparents (Crittenden et al. 2013: 303).

By increasing the output of skills they already possess, these “precocious” children may, simultaneously, reduce their demands on stressed caretakers and improve their own well-being. When the father is absent, children’s work should increase and, often in these cases, we can find poor but expedient role assignments such as designating boys or the very young as alloparents (Ember 1973: 425–6; Stieglitz et al 2013: 240; Whiting and Edwards 1988: 173). When

adolescents leave the household to pursue personal opportunities, younger children in the household take up the slack (Kim and Chun 1989: 176; White 2012: 81).

As families respond to the pressures of globalization to forego subsistence practices, children may play a vital role in this transition. In southern Mexico, rural Mixtec are forced to migrate, seasonally, to the agribusiness-controlled croplands in the north. “Any worker, whether, man, woman or child, is paid twenty-seven pesos per day.” Children’s productivity is comparable to an adult’s, even considering that they “are put to work before the permitted age of eight [using] forged papers” (Bey 2003: 292). In impoverished communities in Brazil, “it is children who put the food on the table” (Kenny 1999: 375). And children respond positively to family needs. In El Salvador, children “expressed this feeling of greater responsibility for their older and traumatized caretakers” (Dickson-Gómez 2003: 335). Thai children claim they’ve “become and remain prostitutes out of duty and love to their parents” and strenuously resist attempts to remove them from their parents’ custody (Montgomery 2001: 82).

In Zimbabwe, it is commonplace to find families headed by 10 or 11-year-olds as poverty and AIDS have reduced and/or disabled the adult population (McIvor 2000: 173). Under truly adverse circumstances, a child may become the “bread winner.” The benefit to other family members is quite evident and will be even more so in the many examples that follow, but there must be benefits for the child as well. Evidently, the potential social support provided by family—even a badly dysfunctional one—must be very great (Hrdy 2009). Goldschmidt (2006), for example, describes humans as having “affect hunger.” One piece of evidence I would offer is that street children are seen to construct “families”—fictive kin—which provide mutual support and care much as in a biological family (Davies 2008: 317; Kilbride, Suda and Njeru 2000: 83).

However, the social contract that insures willing helpers will become willing workers and, even laborers (Baas 2011: 112), is not unbreakable. The tipping point occurs when children are working but not learning new skills, and the benefits of family life may no longer seem commensurate with the increased workload. As yet little studied, Boyette (2013: 71) and Stieglitz's (2009: 43) work make clear that the distinction between children working voluntarily versus doing work that is "assigned" is extremely important. Stieglitz (2009) found considerable evidence of "resistance" to unwelcome work assignments on the part of Tsimané boys and girls. In an ethnographic study, Punch describes tactics employed by children in rural Bolivia to evade a task assignment, including delegating it to a younger sibling (Punch 2001: 29).

Punishing the child for a failure to work diligently also suggests conflict over work assignments:

- [An Amhara adult may encourage a child to its chores] by throwing clods of dirt or manure at him (Levine 1965, 266).
- The Matsigenka (Peru) punish the lazy or uncooperative by scalding or the application of skin irritants (Ochs and Izquierdo 2009: 395).
- FulBe Mare'en boys start herding at age five or six...and...since cattle are essential to a family's survival any negligence must be punished (Moritz 2008: 111).

Boys may flee from a heavy workload on the farm, migrating to plantations or urban centers where they can acquire a bit of spending money (de Lange 2007). Children of both sexes may,

ultimately, orphan themselves from families under great stress. Constant abuse at home (Kovats-Bernat 2006: 49) or watching their earnings squandered by addicted parents (Kenny 2007: 68) may drive urban slum children to sever family ties.

Over the course of the extended juvenile period, a developmental process unfolds as children acquire useful skills. Typically, the very young are free to play; to learn at their own pace and; to volunteer assistance with chores that they can be expected to complete satisfactorily. Gradually, the autonomy that is so evident in the early years is withdrawn as children are given vital, but sometimes unwelcome, assignments in the domestic work force. The idea that parents make decisions that may not be biased in the child's favor (Trivers 1974) is underscored in anthropologists' documentation of the "circulation" (adoption, fosterage) of children. Cross-culturally, circulation is widespread and critical to the domestic economy (Leinaweaver 2008). Most commonly, the child is transferred "to fulfill another household's need for labor" (Martin 2012: 220; see also Honigmann and Honigmann 1953: 46). The request may be for a girl in families with a shortage of female labor (Ritter 1981: 46; Monberg 1970: 132). On the other hand, the impetus may begin with a family that has a surplus of children (Bodenhorn 1988: 14): children too close in age; discord within the family; or, as the means to defray a debt. On Suau, "adopted children were sent along the same 'roads' of exchange as bride wealth pigs and the services of sorcerers" (Demian 2004: 98). Until fairly recently, the Yoruba might pawn (*iwofa*) their children whose work would serve as interest on a debt. They would be bound to work for the lender until the debt was paid (Renne 2005). In Mesopotamia, it was common to put up a child as collateral for a loan, which, if unpaid, led to the child's enslavement (MacGinnis 2011).

As I surveyed the ethnographic literature on childhood, one surprising theme that emerged was the common view of children as chattel. This can be seen in attitudes ranging from the long-

standing East Asian view of children as providing social security for aged parents to the outright sale of children into slavery (Lancy 2014b). The threshold for moving children from the state of sheltered dependency to capital goods may be quite low. In the next section, I discuss the mass recruitment of children into activities that our contemporary mores deplore. Nevertheless, I see these cases as larger-scale applications of the same principles that operate when a harried parent exhorts a son to do garden work when he'd rather be playing (Stieglitz 2009: 43).

Activating the Reserve Labor Force

Natural disaster and tumultuous history provide numerous examples where an entire generation of children is conscripted. “When fathers went off to war, children and their mothers assumed new responsibilities (Clement 1997: 15).” From civil wars in Africa (Rosen 2005) to the revolutionary and civil wars in the US, children were readily employed as auxiliaries and combatants. According to Marten, “The Civil War could have been called ‘the boys war;’ about one hundred thousand [out of 2.7 million] were fifteen and under (1998: 5).” After the plague of 1348, children 8 and younger were employed in much greater numbers in Marseille as they filled jobs previously occupied by older individuals who’d perished (Michaud 2007). In the 1960s, the Ik—who had made their living as foragers in the remote north of Uganda—were forced from their hunting grounds by the creation of a national park. Unused to sedentary living and farming (and the land they were allocated was only marginally productive), they struggled to survive. Children were “put out” at three and forced to find their own food (Turnbull 1992: 135). The !Kung experienced a similar but less severe transformation, but one consequence again was that the period of dependency and freedom from responsibility was drastically shortened for !Kung youth (Draper and Cashdan 1988). Heather Montgomery studied Baan Nua, a type of squatter community in Thailand. Forced off the land because of crowding in their rural homeland, adults

found that the surest source of income was through the prostitution of their children, nearly one-half of whom had been so employed (Montgomery 2001: 72).

Families were placed in jeopardy in the 18th and 19th centuries through the disruptive effects of industrialization and urbanization. The “bread winner” was likely unemployed, disabled or deceased (Clement 1997). A single/widowed woman had to cope with a large brood and her “children’s ability to earn their keep provided the indispensable margin of subsistence.” The youngest “scavenged for wood or coal...scoured the docks for...goods that could be used at home” or engaged in “pilfering” (Mintz 2004: 142). Diaries and ethnohistories record the experiences of Japanese children before and immediately after World War II. They assisted in cultivating garden plots and begged in the streets. Entirely without guidance, they learned to forage and brought home a wide array of edibles⁶. For example, one informant described how “she and the other village children came up with a novel way to fish for snails using a straw [and] mothers boiled the snails for dinner” (Piel 2012: 407; see also Glassford 2014; Morrow and Mayall 2011).

Not only necessity but also opportunity has led families to activate their reserve labor force. The industrial revolution had a major impact on childrearing cost/benefit calculations as factories offered parents the chance to augment family income through their children’s wages (Somerville 1982: 152). With economic expansion through rapid industrialization, juveniles were able to establish their own households earlier, and their departure from the family often led to a younger child entering the factory to compensate for the lost wages (Horrell and Humphries 1995: 485).

As early as the fourteenth century, “children worked in the mines of the Montagne Noir in France, leaving their small footprints in the clay [floor]” (Wileman 2005: 64). By the 1720s, four-year-olds were employed in French textile mills, and a hundred years later in Lancashire, one-quarter of all the ten-to fifteen-year-old girls were making cotton (Sommerville 1982: 250). Of course, this view of children as “bread winners” persists today in much of the “developing” world where “street children” are expected to remit a portion of their earnings to families. In some rural villages in Bangladesh, these remittances constitute over one-third of the family budget (Conticini 2007: 87).

A striking but little-known instance of the reserve labor force played out in the North American West (Rollings-Magnusson 2009) during the “pioneer era.” Very large families were essential for the enormous task of “taming” the frontier and children—largely self-taught—willingly pitched in to help out wherever they were needed (West 1992). Numerous diaries construct a picture of children farming, managing stock, hunting, fishing, marketing, transporting foods—largely on their own. But homesteaders in the nineteenth and early twentieth century did not have to depend entirely on their own fertility to increase the farm labor supply⁷. Known as the “largest children’s migration in history,” so-called “orphan trains” carried about 200,000 children (Warren 2001: 4) from orphanages and foundling homes in eastern coastal cities to families in the Midwest (Kay 2003: iii) and West. The orphan trains continued until 1929 (Warren 2001: 20).

These examples suggest that, over the course of history, many children have experienced a shortened or drastically altered childhood. Foregoing play and the self-guided, self-motivated learning and volunteering characteristic of childhood, the child must become a laborer.

The costs of shortened childhood

Viewed as chattel, children are expected to sacrifice their own direct self-interest to satisfy the needs of their families. Children who are kept very busy with routine chores like child-care and fetching firewood may miss out on the chance to learn other, perhaps more complex, skill sets (e.g. crafts), which come to fruition later in adulthood (Puri 2013: 289). Yora boys may be implored to use a well- developed skill—fishing—to bring food home to share in lieu of practicing their, slower to improve, hunting skills (Sugiyama and Chacon 2005: 260). Children, at the discretion of parents, may be kept from school to work as gardeners or herders (Bock 2002: 218)⁸. Because the hard working child is likely depleting rather than adding to somatic capital, their growth, health and longer-term well-being may be compromised. For example, I observed 12-14-year-old laboring girls, who were quite short in stature.

Children play a critical role in petty industries in Madagascar. Betsileo girls and women do the heavy labor of carrying stacks of sun-dried bricks (made from clay deposited in valleys) up a steep, zig-zag path to a ridge-top kiln. The kiln is situated adjacent to a highway facilitating the sale of the bricks. A standard load for a girl is ten bricks. Each round trip may take upwards of thirty minutes and, in a day, she may make 10 trips, earning around \$1 US (Lancy 2014b: 271).

I lack the data to test any effect of heavy labor on growth; however, in at least one systematic study, Tsimané girls acting as sib-caretakers had less fat and muscle accumulation compared to girls without such duties (Magvanjav et al 2012: 17). Osteological analysis of 19th century urban remains suggests that children forced into labor on behalf of families suffered from various health deficiencies and increased mortality (Ellis 2014: 149). In India, an increase in wages paid

to children is associated with decreased leisure for both boys and girls (Skoufias 1994: 346). As time for play is reduced, opportunities to develop social interaction skill and build peer networks may be reduced (Greve, Thomsen and Dehio 2014; Lancy and Grove 2011b; Stieglitz et al 2013). Older children employed outside the home may have more limited exposure (at a critical age) to parenting strategies, weakening their preparedness as effective parents.

It also seems likely that children who become laborers and heads of household are candidates for a shortening of the adolescent period. Draper and Harpending (1982) first proposed an accelerated life history model, which emphasized psychological and physiological changes in the growing child induced by stress in infancy and early childhood. In this “drop-out” model, absent or abusive parents might reduce one’s confidence in the future and trigger the acceleration of menarche, mating and family formation (Belsky, Steinberg and Draper 1991: 507; Ellis 2004: 946). Not surprisingly, “premature parenthood” is associated with negative outcomes for mothers and their offspring (Gelles 1986: 347; see also Bogin 1994: 32). Both sets of forces—the family’s need for a hard worker or wage earner and the cumulative affects of stress and uncertainty on reproductive physiology—are complementary and, perhaps, mutually reinforcing.

Conclusion

I have put forward the notion that children can serve as a Reserve Labor Force to account for and organize a number of unappreciated and not obviously related phenomena. Current thinking identifies human childhood as peculiar in several respects. First, from a mammalian and even primate perspective, it is extraordinarily long. Second, it is characterized by profound dependency on parents and others for sustenance and care. Third, a dominant hypothesis used to explain this peculiarity has been that this life history strategy where reproduction is delayed

(with the risk of pre-reproductive mortality) is justified, evolutionarily, by the need to acquire a large and useful inventory of subsistence technology. These three points each deserves a small caveat. As detailed throughout the paper, numerous circumstances act to shorten the period of childhood. Further, many of the specific triggers (war, epidemic, wholesale economic change) affect not just a few outlying children but the majority in a particular generation or region. Next, Kramer (2014) and others are calling attention to the fact that children can, from a very early age, reduce the burden of their care and take on chores that would otherwise fall to one of their caretakers. Indeed, the entire micro-culture of child rearing seems to be focused on distributing and lessening the burden of childcare. And the third point can be challenged by the growing body of work—much of it involving systematic observation and measures of productivity—which reveals children as “precocious” learners acquiring vital subsistence skills long before the assumption of adulthood.

As repugnant as the concept might be, thinking of children as chattel can be helpful, analytically. It is very much in accord with the way societies viewed children, at least until the Victorian era (Zelizer 1985), and is quite typical of parental views in the ethnographic record. A common declaration is that a mother’s investment in nourishing and keeping an infant alive imposes a lifetime “milk debt” that can be called in at any time. Children are expected to help out as soon as and wherever they can. There are several benefits to the child for participation in the domestic labor force. Not only is the child strengthening affiliative ties and earning goodwill, it is learning through doing. Collaborative interaction with other workers: observing, imitating and practicing in their company is probably the prime means of learning one’s culture.

Our current understanding of play as the antithesis of work is atypical. Play and work are integrated not only thematically—as in make-believe—but practically, as child minders are most

effective when they keep their charges engaged in play. Furthermore, it is very clear that critical skills are being acquired and applied through playful work. However, there may be only a partial fit between the skills parents ask children to deploy—treating them as a labor force to be managed (chattel)—and those they’ve perfected autonomously. We must also allow for the extreme variability reflected in the ethnographic record in the sheer amount of work expected of a given child. Family composition, age, gender and, subsistence type all mediate a given child’s assignment. Children’s work is also moderated by parents’ inherent understanding of the child’s need for play (the Baining a notable exception cf Fajans 1997: 168), their need to learn at their own pace, their distractibility, lack of fine motor skills, low strength, endurance and so on. Children, in other words, are rarely “fully” employed either as to their skills or capacity. The idea of “chattel” is as much or more about future as present value.

Middle childhood appears to be the most common transition point where children must relinquish at least some autonomy in order to make consistent, reliable contributions to family well-being through their work. This may not entail any “new” assignments but, rather, the expectation that skills learned earlier or previously performed voluntarily and inconsistently will now be used in a consistent and productive manner. Failing to meet this expectation will lead to ostracism, the withholding of food, and corporal punishment. Still, under “usual” circumstances, this increase in demand will be gradual and take place over some time. In theory and fact, the onset of middle childhood⁹ is subject to wide variability. In extraordinary circumstances, such as the loss of a mature member of the family workforce, however, the bar might be raised quite abruptly. A six-year-old might suddenly find herself spending far more time in food processing than play. Similarly, a boy who’d proudly looked after a calf as his “chore” may, with little fanfare or notice, find himself spending his days mucking out a byre full of cattle. While these cases may be sporadically distributed over a community, other unusual circumstances such as the

rapid monetization of the rural economy may lead to an entire cohort of children taking up very demanding employment as plantation laborers. In all these “unusual” cases, adults making decisions about the allocation of children’s time and effort are operating on the assumption that the child carries a reserve of skill and energy that can be rapidly activated. As a result, children are treated as a Reserve Labor Force.

Advancing further, I would argue that cumulating these “unusual” cases suggests that they may not be so unusual. This sudden increase in the demand on children seems common enough that it could represent an alternative life history course where the stage labeled “middle childhood” is shortened, if not eliminated. Further, as discussed in the previous section, this change may be associated with a curtailment of adolescence as well, as children shouldered with adult labor and responsibility might experience an earlier onset of puberty and family formation. We can see that, in some respects, the lengthened period of childhood is a two-edged sword. While individuals may gain enormous fitness advantages through a long sub-adult period of development, the necessary dependency on others nurtures a sense of obligation, which is all too evident in the literature I have reviewed. Children may, seemingly, act against their own self-interests and to the detriment of their own fitness in order to maintain the integrity of the families that have nurtured them in the past and may yet in the future.

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2 Recent analyses cast some doubt on the exclusivity of the extended juvenility claim at least with respect to middle childhood as an “extra” stage (Bernstein, Sterner, and Wildman 2012).

3 That isn’t to say that one becomes an expert hunter by 10. In some cases peak productivity as a hunter may not be reached until mid-adulthood (Gurven, Kaplan, and Gutierrez 2006: 463).

4 Blurton–Jones speculates that Upper Paleolithic foragers may have enjoyed much better nutrition than contemporary hunter–gatherers who often inhabit resource poor environments. Healthier, stronger, larger juveniles (Blurton–Jones 2006: 252) might have been able to capitalize on their skill set at an earlier age.

5 Given the normative focus and relatively short period of the ethnography, field workers may well miss the occasional contingent work assignment. So the relative paucity of cases like these cited may be a gross underestimate.

6 There is a body of research that supports the notion that children are “natural” foragers and do not need to be taught or even shown how it’s done (Chipeniuk 1995: 492; Zarger 2002). The survival of thousands of contemporary “street kids” as young as 5 also suggests the potential for active foraging and rapid cultural learning in the absence of adult teachers (Lancy 2010; 2014b).

7 Two hundred years earlier children were swept off the streets of London and “deported to Virginia to provide labor, to sanitize London society, and to infuse the colony with the growth potential that these children embodied” (Barrett 2014: 162; see also Honeyman 2013). Virtually all the colonial powers followed this practice.

8 Studies in the US consistently document a negative relationship between higher levels of

involvement in paid work and grades (Bachman et al 2013).

9 Also referred to as the juvenile period (Bogin and Smith 2000: 380).