Children as a Reserve Labor Force

by David F. Lancy

Human life history is unique in the great length of its juvenile, or immature, period. This lengthened period[1] is often attributed to the time required for youth to master the culture, particularly subsistence and survival skills. But studies in increasing number show that children become skilled well before they gain complete independence and adult status. As children learn through play and participation in the domestic economy, they seem to be acquiring a "reserve capacity" of skills and knowledge that may not be fully employed for many years. To resolve this paradox, the theory offered here poses that this reserve capacity of children, both individually and collectively, 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 Biocultural 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 bedfellows. 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 humanness (Lancy 2014*a*). The period referred to as middle childhood or the juvenile stage is marked by physiological (e.g., adrenarche; see Campbell 2011) and cognitive changes that may trigger patterned and stable responses, such as a heightened expectation of modesty and the assignment of greater responsibility (Lancy and Grove 2011*a*). 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 2015) that 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, growth, reproduction, or 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 that of 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 fourth trimester). Many societies explicitly treat child care 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 the ages of about 5–7, depending on the society, children enter middle childhood, where they come to be relied on 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 dexter-

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1. 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).

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ous, and are still developing socially. Adolescence varies in length but consistently involves rapid growth to mature adult size (and competency) and 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 are not 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). Socioemotional development is often "pushed" through various training routines to increase the child's awareness and respect toward others, control of emotions, and prosociality, particularly sharing (Lancy 2014*b*:187–191).

For the 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 by running errands (Lancy 2012:29–31). A consensus exists that 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 12 in those who enjoy ready access to calories and as late as 18 for those who do not (Eveleth and Tanner 1990). In Cunningham's (1990) survey of children's employment in the United Kingdom, he identifies—based on historical census criteria from the mid-nineteenth century—15 as the threshold age below which the individual was considered a child (118). In the following, *children* will be those no older than 15.

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 following:

- 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, which 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, and 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, there is a rapidly accumulating series of studies (Lancy 2014*b*: 278–279) that 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*. (Bird and Bliege Bird 2002:291; emphasis added)

In Bliege Bird and Bird (2002), they write, "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*" (262; emphasis added). They conclude, "How much experience do Meriam children need before they become efficient reef foragers? Evidently very little" (291). Other studies have made similar findings: young Martu children hunt (and survive on) goanna lizards (Bird and Bliege Bird 2005); Hadza 4-year-olds gather (and eat) large quantities of baobab fruit (Blurton-Jones, Hawkes, and O'Connell 1997); Zapotec children have a "precocious" command of ethnobotany (Hunn 2002); Ache girls match adult women's foraging returns by the age of 10–12 (Hill and Hurtado 1996:223); Samoan 10-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; see fig. 1). !Kung boys are considered successful hunters and have been feted for bagging their first large mammal at least 10 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 10 are able to bring down a bison calf with bow and arrow (Dawe 1997:307).[2]

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 age 9 (see fig. 2).

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 2011*a*), the Pumé being a notable exception (Kramer and Greaves 2011:317). And last, family composition governs the demand for children's contributions. A daughter who is 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 7 (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. First, anthropologists observing children describe, in most cases, a life filled with play (Lancy 1996, 2014*b*; 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 do not want to restrain their exploration and learning (Hewlett 2013:65–66; see fig. 3).

Another fertile source of learning opportunities occurs through make-believe. In the typical 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 2014*b*). 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 discovered they were acquiring a significant amount of small game that went unnoticed in the camp because the boys 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 with regards to 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 [1938]: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

2. That is not 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).

Figure 1. Matses (Peru) children fishing with a net (photo credit: Camilla Morelli, Ph.D.). A color version of this figure is available online.

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 2014*b*; 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., they might knock over a mortar and spill the grain); to carry out a task without the assistance of a more competent but too busy person; to assist without disrupting or damaging the work of others; to make the long, arduous trek in search of food or to and from distant gardens; or to do a task without injury to themselves or someone else. They might not be the "right" gender, or there may be an older sibling who will 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*?" ("You guarantee?"). Basically, a child wishing to display a formerly unacknowledged skill is challenged to guarantee a competent performance, failing which he or she will be mocked and teased—even by his or her 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 the skills they have 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 !Kung[3]. Still, individual cases of voluntary self-provisioning are reported for both the Aka (Boyette 2013:88) and !Kung (Howell 2010:30). Under pressing circumstances, skilled but unproductive children might rapidly ratchet up their productivity by executing efficiently those skills they have

3. Blurton-Jones (2006) 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.

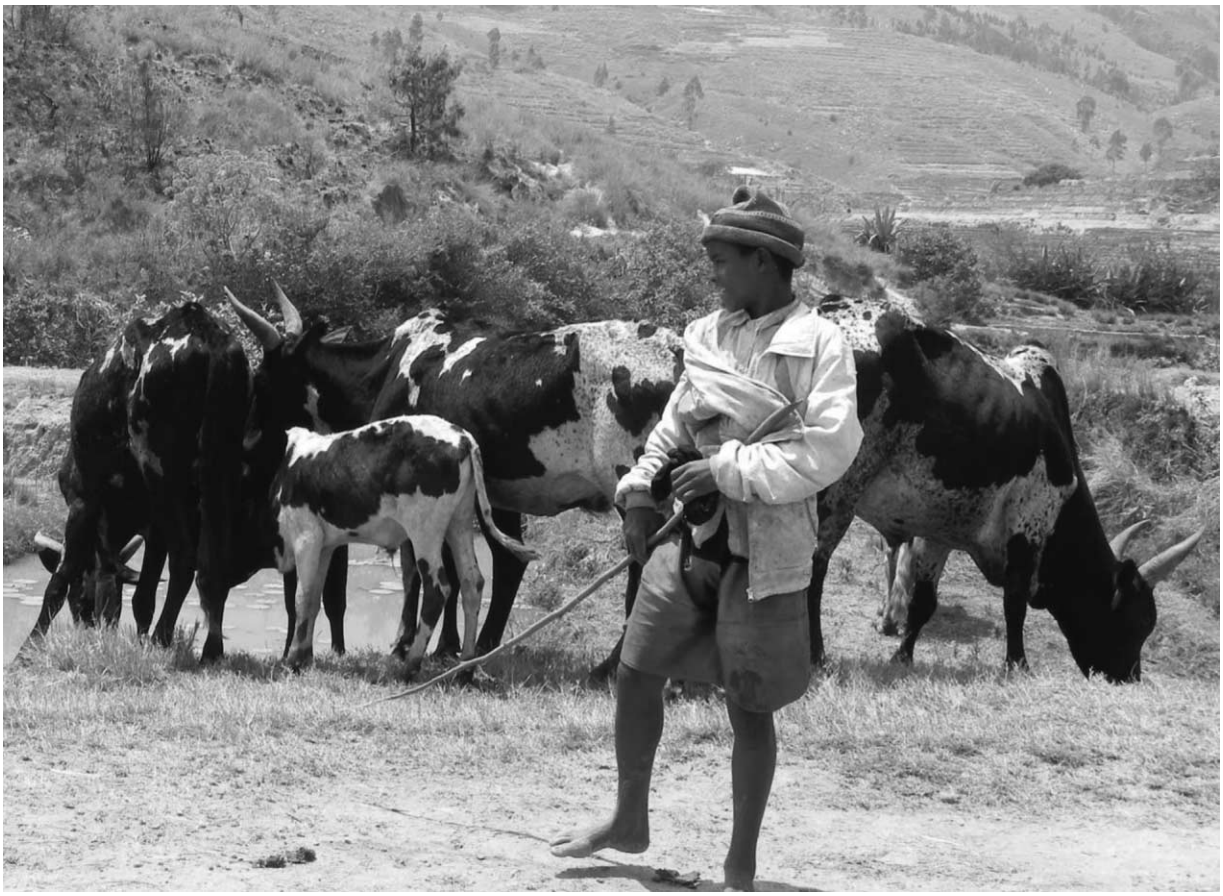

Figure 2. Bara (Madagascar) herdboy (photo credit: David F. Lancy, Ph.D.). A color version of this figure is available online.

been perfecting through playful work and practice (Lancy 2014*b*). 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 in 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). There is also evidence of children welcoming more short-term or contingency-related "special assignments," in addition to routine chores. 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; see fig. 4).

In times of peak labor demands, more is asked of children. In rural China, schools were *dongzxue*, or winter schools, because children did farmwork 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 death[4] (Bass 2004:83; Polak 2011:142; 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

4. 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.

Figure 3. Matses (Peru) boy learning to use an ax (photo credit: Camilla Morelli, Ph.D.). A color version of this figure is available online.

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 1973:425–426; 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," and 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

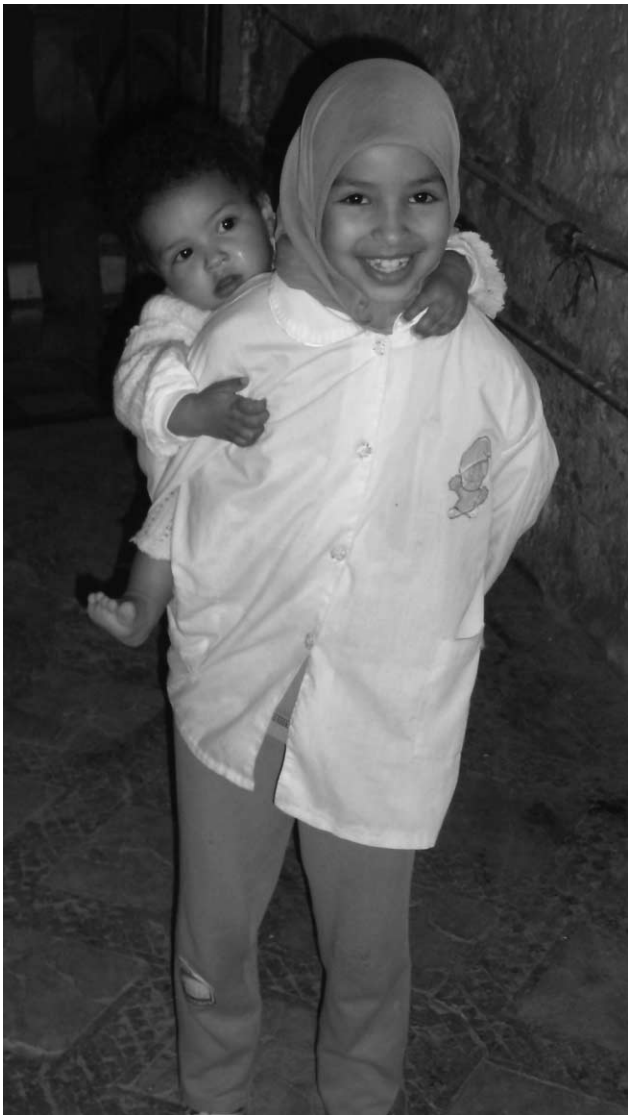

Figure 4. Moroccan sibling carer (photo credit: David F. Lancy, Ph.D.). A color version of this figure is available online.

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 have "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 "breadwinner." 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—that 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 ensures that 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. Though as yet little studied, Boyette's (2013:71) and Stieglitz's (2009:43) work makes 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 do his 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, learn at their own pace, and volunteer assistance with chores 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 workforce. 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 (Monberg 1970:132; Ritter 1981:46). On the other hand, the impetus may begin with a family that has a surplus of children (Bodenhorn 1988:14): they may have children too close in age, there may be discord within the family, or the children may offer a 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. The children 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 2014*b*). 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 would 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 United States, children were readily employed as auxiliaries and combatants. According to Marten (1998), "The Civil War could have been called 'the boys war'; about one hundred thousand [out of 2.7 million] were fifteen and under" (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 had 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 (on top of which the land they were allocated was only marginally productive), they struggled to survive. Children were "put out" at 3 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 eighteenth and nineteenth centuries through the disruptive effects of industrialization and urbanization. The "breadwinner" 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 edibles.[5] 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 child-rearing cost/benefit calculations as factories offered parents the chance to augment family income through their children's wages (Sommerville 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, 4-year-olds were employed in French textile mills, and a hundred years later in Lancashire, one-quarter of all the 10- to 15-year-old girls were making cotton (Sommerville 1982:250). Of course, this view of children as breadwinners 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

5. 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 is 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, 2014*b*).

children—mostly 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 centuries did not have to depend entirely on their own fertility to increase the farm labor supply.[6] 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 such as 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).[7] Because the hardworking 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 girls aged 12–14 who were quite short in stature due, I suspect, to their heavy labor.

> 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 2014*b*: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 nineteenth-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 skills and build peer networks may be reduced (Greve, Thomsen, and Dehio 2014; Lancy and Grove 2011*b*; 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, 1988) 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; B. J. Ellis 2004:946; M. A. B. Ellis 2014). 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. Each of these three points deserves a small caveat. As detailed throughout the article, 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 microculture of child rearing seems to be focused on distributing and less-

6. 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.

7. Studies in the United States consistently document a negative relationship between higher levels of involvement in paid work and grades (Bachman et al. 2013).

ening the burden of child care. And the third point can be challenged by the growing body of work—much of it involving systematic observation and measures of productivity—that 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 analytically helpful. 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 affilliative 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 have 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) and their need to learn at their own pace, distractibility, lack of fine motor skills, low strength, endurance, and so on. Children, in other words, are rarely "fully" employed in terms of either skill 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 childhood 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 6-year-old might suddenly find herself spending far more time in food processing than play. Similarly, a boy who would have proudly looked after a calf as his chore may, with little fanfare or notice, find himself spending his days mucking out a cattle-filled enclosure. 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 subadult 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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Comments

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In "Children as a Reserve Labor Force," David Lancy proposes that children can be called upon to access a reserve

capacity of skills and knowledge that they have accumulated in order to contribute to pooled resources needed for survival. He suggests that there is an inherent flexibility afforded by human life history that allows this alternate strategy to be employed in times of need. When all is well, development proceeds according to a "primary life history strategy," with a full juvenile period dominated by learning and play; however, if there is a need to call a child up from this minor league pool, the opportunities for further development are cut short, and there is a shift to an "accelerated strategy." I applaud the attempt to join cultural and biological perspectives in this piece. A few parts of Lancy's argument warrant closer evaluation, based on existing theories and evidence from evolutionary and demographic studies.

Early on, Lancy states, "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." Trade-offs contribute to an organisms' life history as part of an evolved strategy, and there are three widely acknowledged critical trade-offs faced by all organisms: the trade-offs between quantity and quality of offspring, between current and future reproduction (Stearns 1992), and between physical and functional maturation and reproduction ("embodied capital"; Kaplan, Lancaster, and Robson 2003). In the "embodied capital" theory of life history evolution, the physical developmental trajectory—or the reaching of a mature state (e.g., attainment of adult brain mass)—is temporally dissociated from the maximum "payoff" generated through investments in learning, which comes later. This is important to keep in mind when considering the meaning of statements such as, "These studies weaken the assumption that a lengthened childhood is essential to learning subsistence skills . . . Brain growth—critical for learning one's culture—is essentially complete by age 7." Absolute brain growth cannot be linked specifically to certain types of learning, and further, although absolute brain mass may reach adult proportions by childhood, continued development of neural circuitry (e.g., myelination, synaptic pruning) continue until 18–20 years of age (reviewed in Blakemore and Choudhury 2006).

While Lancy reviews some examples of what he terms "precocity in learning subsistence skills" in support of his proposition that an extended period of learning may not be necessary for efficient food production, the evidence cited is mostly qualitative in nature. Kaplan and Robson (2002) found that net food production in human foragers is negative—that is, they consume more than they produce—until the mid to late teen years, at which point production of extracted resources (the most energetically dense and valuable resources, such as meat, honey, and nuts) begins to increase, but surplus resources are not produced until adulthood. The distinction between perceived proficiency and actual energetic returns from children's foraging or hunting activities is an important one to make, as it has important implications for future production of any group if an "accelerated strategy" is employed.

Finally, broadening the definition of "child" to encompass the period from the end of infancy (~3 years) to 15 years is justified by Lancy as based on historical census criteria from the mid-nineteenth-century United Kingdom. This assertion, which is then used as the basis for the remainder of the article, is problematic from an evolutionary and a developmental perspective. First, Lancy's examples throughout the article come from populations across space and time, and it is unlikely that one cutoff point, based on children involved in industrial labor, will apply to all considered—especially considering the impact of factory work on childhood stunting (Tanner 1981). Further, he identifies puberty as defining the end of childhood ("middle childhood" or the "juvenile" stage, depending on who you read) but only considers a marker of female puberty (menarche) in defining that end point. Considering males in this discussion is important because, first, females generally enter the "adolescent" stage of development earlier than males (meaning that male and female childhoods are not the same length) and, second, because sociosexual forces shaped male and female developmental trajectories (cf. Bogin 1999), likely resulting in different learning pathways. Indeed, studies of brain development have shown that there are significant sex differences in human brain growth, with female brains growing for a longer period of time at a slower rate than male brains (Jolicouer, Baron, and Cabana 1988; Leigh 2004).

Synthesizing different perspectives to understand the meaning and the experience of variation within human childhood is a must—physiology, culture, and the environment all shape this stage of life. This approach requires careful consideration of the full suite of evidence on all sides, and I look forward to more treatments of this nature.

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Developmental Plasticity, the Juvenile Period, and "Reserve Capacity"

Homo sapiens follow a slow life history strategy, reflected in part by the extended period of dependency of human children. Evolutionarily oriented scholars have proposed that this prolonged period of immaturity was likely favored by natural selection, given the biological rule of thumb that when there are great costs (here, the efforts of parents, reduced number of offspring, and likelihood of dying before reproducing) there should be great benefits. Those benefits have usually been proposed to be associated with the extended time children have to learn the technical (e.g., Kaplan et al. 2000) and social (Bjorklund 1997, 2007*a*) skills necessary for survival. Yet, Lancy reminds us that there is much variation in the

skills that children acquire, and in many contexts young children are able to perform often difficult and arduous tasks, although rarely as skillfully as adults. Thus, when environmental conditions arise necessitating that children contribute to the economy of their families or to their own survival, they are often able to do so, functioning as a reserve labor force.

Lancy's provocative proposal reminds us of the importance of individual differences in development and that behavioral plasticity has been as much the target of natural selection over the course of human evolution as has stability, as reflected in recent expressions of life history theory (e.g., Ellis et al. 2009, 2012). As Lancy notes, children are sensitive to early life conditions that entrain their development in (potentially) adaptive ways. Research with both human and nonhuman animals has demonstrated that early harsh and unpredictable conditions are associated with the adoption of fast life history strategies, whereas nonharsh and predictable environments are associated with the adoption of slow life history strategies (e.g., Belsky, Schlomer, and Ellis 2012; Ellis et al. 2009, 2012). Moreover, just as children who take on adult tasks often display less-than-optimal developmental outcomes compared to their peers, the outcomes of children following a fast life history strategy are often suboptimal and socially undesirable (e.g., early parenthood, sexual promiscuity, engaging in high-risk and often illegal activities). Yet, children apparently have the plasticity both to adapt to contemporary hardship (i.e., serving as a reserve labor force) and to modify their development in adaptable (if socially undesirable) ways in anticipation of harsh and unpredictable environments (Ellis et al. 2012).

However, such plasticity is not infinite, and children's ability to take on adult-like tasks is developmentally constrained. In particular, as in the young of other nonhuman mammals, it is not until the juvenile period, between the ages of about 6 and 12 in humans, that children, under certain conditions, can be expected to display the "reserve capacity" that Lancy proposes. Although children are typically weaned by the age of 3 or 4 in most hunter-gatherer cultures, they remain highly dependent on adults for their survival, as do children in industrial societies, mainly because of limitations in physical and cognitive abilities. For instance, preschool-age children still have their primary teeth, and they lack the strength and dexterity to hunt or forage for themselves. Their physical limitations are accompanied by cognitive shortcomings. Piaget described preschool-age children's thinking as preoperational. Although symbolic, such thinking is intuitive, lacking the logical operations characteristic of older children. Young children, for example, have difficulties regulating their thoughts and behavior, have limited problem-solving abilities, and perform poorly in social situations requiring both cooperation and competition, relative to older children (see Bjorklund 2012). Although children in the juvenile period (often referred to as middle childhood by developmental psychologists) continue to remain dependent on adults for their survival, they nonetheless possess greater physical (e.g., secondary teeth, greater strength and manual dexterity) and cognitive abilities than their preschool-aged counterparts and can sometimes fend for themselves, at least minimally, as Lancy clearly demonstrates in his essay. Moreover, although plasticity is proposed to be greatest in infancy and childhood (e.g., Belsky, Steinberg, and Draper 1991), it persists into the juvenile period, which, according to Del Giudice, Angeleri, and Manera (2009),

> can be conceptualized as a developmental switch point in human development, when adaptive individual differences are expressed and individuals readjust their reproductive strategies to their local environment and genetic dispositions. Adrenarche acts as a regulator of developmental plasticity, physiologically integrating ecological factors (such as stress and relationship with caregivers) with sex-related and genotypic differences, and setting the ontogeny of social behavior on alternative pathways. (3)

Human children are adaptable and have the developmental plasticity to adjust their behavior and ontogenetic trajectory as a function of current ecological conditions. *Homo sapiens* have evolved so that children can best develop into technologically and socially competent adults by extending their pre-reproductive years. However, at least beginning with the juvenile period, children have the physical and intellectual plasticity to adjust their behavior to harsh and unpredictable conditions, promoting—if not optimal developmental outcomes—survival.

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David Lancy offers a timely and cogently written piece that addresses a prevalent trend in research on childhood, namely, the precocity of children in learning subsistence-based skills. His command of the literature provides a platform for him to convincingly argue that children, cross-culturally and across subsistence regimes, are quite capable of learning vital economic skills before adulthood. As children learn through participation in their domestic economy, Lancy suggests, they are simultaneously acquiring a "reserve capacity" of information and aptitude that can be triggered into action to compensate for sudden deficits in familial resources. This argument is largely based on the acquisition of subsistence skills and offers an intriguing way to explain high levels of economic productivity reported for children around the world. This "ratcheting up" of economic output in exigent circumstances could function, as Lancy suggests, to counterbalance a shortfall of resources. There may be alternative explanations, however, that Lancy does not thoroughly explore. Ecological variability, for instance, plays a critical role in determining whether children can reliably exploit resources in their environment. The population

with which I work, the Hadza of Tanzania, provide a pertinent example.

Children's productivity among the Hadza is well documented (Bleek 1931; Blurton-Jones, Hawkes, and O'Connell 1989; Crittenden et al. 2013; Marlowe 2010), and it is likely that their foraging prowess is linked to the availability of resources in and the ecological characteristics of the Lake Eyasi basin. Children can be productive foragers in areas that have variable terrain (thereby diminishing chances of getting lost) with resources located relatively close to camp. This may be why Hadza children exhibit far greater productivity when compared to !Kung children, whose economic contributions were largely limited to processing mongongo nuts collected by adults (Blurton-Jones, Hawkes, and Draper 1994; Blurton-Jones, Hawkes, and O'Connell 1997). In addition to potentially influencing the viability of child foraging, ecology may play an important role in resource choice. Differences in productivity might be linked to the size and strength of child foragers (Blurton-Jones and Marlowe 2002), allowing them to reach adult efficiency more quickly in targeting certain foods over others (Bliege Bird and Bird 2002). Furthermore, wide variation in returns suggests that while some children exhibit hyperproductivity that may parallel adult collection rates, others have collection returns that fall below the threshold for meeting daily caloric needs (Crittenden et al. 2013). At present, it is unclear why such differences in productivity exist. While Lancy's emphasis on the adaptive value of children as a reserve labor force is tantalizing and compelling, we must keep ecological variation in mind. Additionally, we must exercise a certain degree of caution when extending the argument to life history.

Lancy's foundational argument is that humans might be capable of an "alternative life history course" (i.e., an "accelerated strategy with a shortened period of dependency"), yet the species-wide pattern of human growth and development is one of delayed dependency (Bogin 1997; Leigh 2001). While I agree that biological and cultural perspectives are not always "comfortable bedfellows," the discipline of anthropology is making strides toward understanding childhood as culturally diverse yet biologically based (Crittenden 2014; Meehan and Crittenden, forthcoming). Therefore, the evolutionary claims of an alternative life history must be tempered with the understanding that while the social parameters of childhood, along with concomitant roles and expectations, are indeed culturally malleable, they are firmly rooted in the life history of our species.

Lancy's innovative approach to discussing the relationship between play and work cannot be understated. He aptly argues that "children at play are flying under the radar" with respect to demonstrating economic competence. The anthropological literature typically situates play in the context of either psychosocial development or economic productivity, rarely highlighting the dual nature of play and work (for exceptions, see Crittenden, forthcoming; Lancy 2012). Lancy's declaration that "play and work are integrated not only thematically—as in make-believe—but practically" functions as a call to arms for ethnographers to explore the myriad ways in which children acquire the critical skills of their culture. By focusing on the variety of ways that children learn necessary economic skills, the significance of their contributions moves to the forefront of discussions on the relationship between the evolution of childhood and cooperative breeding. With this synthesis, Lancy adds to the increasing body of literature that not only incorporates a "child's eye view" (Fouts and Brookshire 2009) of the world but also emphasizes the dual nature of juvenile contributions—as children are simultaneously both producers and consumers (Crittenden and Marlowe 2008; Kramer 2011). The cooperative breeding system is dynamic and flexible, and self-provisioning by children may have been a key component of the derived *Homo* complex. A view of cooperative care that identifies high levels of economic productivity among children provides a stimulating avenue for future research.

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19 I 15

Children's Work as a Window into the Energetic, Reproductive, and Cognitive Trade-Offs of Human Life History: A Comment on Lancy

No theory of human evolution can hope to succeed without confronting the puzzle of our extended childhood. Lancy complements existing approaches with the thought-provoking argument that children function as a "reserve labor force" that can be activated in emergencies of various kinds. Lancy makes a compelling case that, as a rule, juveniles do not contribute to their full capacity to the family economy. He concludes by speculating that early recruitment into work may be part of an alternative life history trajectory associated with a shortened middle childhood stage and accelerated maturation/reproduction.

While the hypothesis of an accelerated life history strategy is intriguing, the underlying logic is not made fully explicit in the article. In fact, unpacking the relevant assumptions suggests a number of plausible alternative predictions. As the human equivalent of juvenility, middle childhood is defined by the combination of (*a*) sexual immaturity and (*b*) partial independence from parents for feeding and protection (Bogin and Smith 1996). Early recruitment into work may accelerate the developmental processes that permit *b* without necessarily affecting *a*. By providing for family members while still sexually immature, children are subsidizing the survival, growth, and reproduction of other family members. At the same time, they may be storing energy reserves in view of their own

growth and reproduction. Whether the optimal strategy is to shorten childhood and anticipate puberty or to prolong childhood while serving as a labor force is likely to depend on a number of factors. For example, conditions of severe food scarcity in the absence of other mortality threats may favor prolonged, work-intensive childhoods; in contrast, events that imply high rates of uncontrollable mortality—wars, epidemics, and so forth—should be more likely to trigger earlier reproduction (see Ellis et al. 2009). Hazardous events also reduce the expected fitness benefit of investing in other family members (who may die regardless); in conditions of high mortality, then, children may curtail juvenility while using up a larger share of their returns for their own growth and maturation.

Regardless of mortality levels, the advantages of delaying maturity must be weighted against the fact that a larger and stronger body increases an individual's effectiveness in foraging and other subsistence tasks (Gurven and Kaplan 2006). However, a larger body also consumes more energy; earlier maturation is only advantageous if the increased production more than offsets the associated increase in consumption. Whether this is the case is likely to depend on the local ecology, including the availability of low- and high-strength foraging options (Kramer 2011). Moreover, the physical changes of adolescence are energetically demanding and typically subsidized through provision by older family members (Reiches et al. 2009). When food is very scarce, the concentrated energetic demands of anticipated puberty may be too high to afford, even if adult levels of strength would result in a net benefit once achieved. In other words, children may end up "trapped" into a prolonged juvenility because physical maturation—even if beneficial in the long term—would divert too much energy from the immediate needs of their family.

Throughout the article, Lancy highlights potential trade-offs that may favor low-intensity helping in children who live under benign conditions; for example, early recruitment into work may compromise future health or limit the development of parenting and social skills. An embodied capital perspective (Kaplan et al. 2000) also suggests that intensive work early on may reduce an individual's future efficiency in performing more complex subsistence tasks.

If such efficiency trade-offs were demonstrated, the question would arise of what neural and psychological processes mediate them. While the brain has (almost) reached adult size at the beginning of juvenility, synaptogenesis and white matter development proceeds with a sustained pace throughout adolescence. The remarkable cognitive changes of middle childhood include the rapid development and differentiation of executive functions, a family of cognitive processes that support self-regulation (see Del Giudice 2014). Importantly, executive functions include both inhibition (crucially implicated in self-control) and flexibility (i.e., the ability to switch between alternative sets of rules and cognitive frames).

An intriguing, admittedly speculative possibility is that a childhood of "all work and no play" may specifically compromise the development of cognitive and behavioral flexibility, with negative consequences on performance in complex tasks that require improvisation and creativity. This would be consistent with theories of play as self-initiated "training for the unexpected" (Špinka, Newberry, and Bekoff 2001). Normally, executive functions show a pattern of strong positive correlations with one another (Miyake and Friedman 2012). However, it is possible that, under severe conditions, early recruitment into work may elicit a partial trade-off between inhibitory self-control and flexibility. In total, the perspective on childhood offered by Lancy is especially valuable in that it stimulates novel and fascinating questions and opens a unique window into the energetic, reproductive, and cognitive trade-offs that shape the human life history.

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The Costs and Benefits of Child Labor

Lancy provides an elegant and stimulating review of the plasticity and vulnerability of childhood in the anthropological and historical record. In this short comment, we ask how best this account can be extended and applied to the broader context of international development and current attempts to improve childhood experience. Specifically, what does (evolutionary) anthropology have to say about the rapid uptake of formal education in the developing world and the frequent conceptualization of child labor as a violation of the "right to childhood"? To answer these questions requires a rigorous consideration of the costs and benefits of children's work, acknowledging that payoffs may vary between parents and children and that behaviors maximizing fitness are often distinct from those that maximize well-being.

Just as economic shocks in the form of subsistence failure or natural or political disasters can truncate behavioral childhood, economic development provides novel incentives to extend juvenile dependence and increase the allocation of children's time to skill acquisition through schooling. Such shifts are generally understood to improve well-being via increased opportunities for capital generation on the adult labor market. They are also unlikely to be fitness maximizing in the evolutionary sense; in postdemographic transition societies, we now pursue levels of education incompatible with high fertility (Goodman, Koupil, and Lawson 2012). Thus, school presents a novel dimension of childhood detrimental to fitness but good for well-being and therefore to be celebrated, while children's work, as a barrier to education, presents a cause for concern and potential grounds for policy intervention.

This account of the benefits of education and the dangers of child labor falters when faced with the reality of many predominantly rural nations in the contemporary developing world. Parents almost everywhere face considerable, well-intentioned external pressure to send children to school, usually necessitating reductions in children's work, in an effort to meet internationally agreed targets for universal education. Yet for many, the quality of available schooling is dismal, journeys to school are long and hazardous, and adult labor opportunities remain primarily limited to subsistence agriculture. Furthermore, children's work offers its own, potentially more valuable opportunities for skill acquisition and is often indispensable to the long-term maintenance of households. Schooling can be costly for both parent and child, and child labor can be beneficial.

In many regards, these cautionary points follow clearly from the scholarship on childhood outlined by Lancy. Indeed, anthropologists have long argued that our high fertility rates coevolved with the recruitment of children as "helpers at the nest" (Kramer 2011). Yet, as revealed by its absence in the target article, evolutionary anthropologists have been surprisingly muted on the topic of schooling as an axis of childhood of increasing importance (but see Bock 2002), reflecting a traditional disciplinary focus on questions most relevant to our evolutionary past rather than our ever-changing present (Gibson and Lawson 2015).

What then can evolutionary anthropology offer? Most obviously, it reinforces awareness that children's work is often motivated by their best interests. Such awareness is not altogether absent in contemporary policy. Many differentiate and seek only to eliminate the "worst forms of child labor" (Edmonds 2007)—but such terminology unhelpfully stigmatizes children's work, effectively implying that all child labor is to some degree "bad." Furthermore, the extent to which children's work is viewed as damaging is often defined by its interference with school attendance, failing to acknowledge that schooling itself may be traded against alternative dimensions of well-being. More nuanced thinking can lead to alternative policies that minimize trade-offs between school and children's work most valuable to the household economy (e.g., scheduling school breaks during harvest time) and that steer us away from interventions more likely to exacerbate rather than relieve poverty (e.g., fines for poor school attendance).

Lancy discusses many situations of child labor that intuitively appear detrimental for both well-being and fitness. However, even in seemingly extreme scenarios (e.g., child prostitution or work in commercial mines), we must recognize that such activities may represent a "bearable choice" for parents and children with limited resources (Rende Taylor 2005). Child labor can only be deemed truly detrimental when alternative and more beneficial allocations of time and effort are (made) readily available. An evolutionary focus identifies at least two scenarios in which children may work against their own interests. First, when there is parent-offspring conflict, that is, when payoffs for parents and children differ, so that parents tolerate costs to individual children in the face of net rewards to inclusive fitness. Second, when there is adaptive lag, including that brought about by rapid economic development, so that preferences guiding behavior are out of sync with their anticipated consequences. Focusing future research on these areas promises a richer understanding of childhood that not only better reflects the realities of today's world but also has the potential to critique and improve existing efforts to ensure the well-being of the people we study.

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A Historian's Take on "Children as a Reserve Labor Force"

Children, even very young children, are far more capable and competent than many US middle-class parents assume.

US history provides a wealth of examples of extremely young children who contributed substantially to their family's well-being and support. These include 2-year-old Abraham Lincoln, who assisted his father in clearing fields after his family moved to Indiana, as well as the hundreds of thousands of enslaved children, who, as young as age 2, were expected to tote water to the fields, collect kindling, and swat flies at their masters' dining table.

During the early nineteenth century, two developments, one economic, the other cultural, undercut an older notion of the useful child. Mechanization of the fabrication of cloth and clothing eliminated a chore that demanded hours of girls' time. The gradual decline of farm households, which required the labor of all family members, increased the time available for children to devote to play and schooling. Meanwhile, jobs that during the early stages of the industrial revolution utilized large numbers of child laborers—especially in mills, factories, and mines—declined as technology took over responsibilities previously relegated to children. In the United States, the Fair Labor Standards Act of 1938, which formally abolished most forms of child labor, helped to universalize the notion that labor was incompatible with a proper childhood.

At the same time, a shift in cultural attitudes convinced growing numbers of parents that expecting children to perform chores or to contribute to the familial economy was wrongheaded. Not only did young children lack the skills to perform household tasks effectively and regularly, but making such demands created undue familial tensions. In recent years, even school homework was increasingly viewed as detrimental to warm parent-child relationships.

A Romantic ideal of childhood, which arose in the late eighteenth century and celebrated this life stage as an innocent and carefree period that should be devoted to play and

education, regarded labor as a corrupting influence detrimental to children's emotional and imaginative development. To require children to work was to treat them as chattel and not as beings possessing spiritual qualities. The middle-class Victorian notion of the family as a "walled garden" and emotional haven in a heartless world also militated against the idea that children should be expected to support the family economy. If the family was essentially an affective unit and if children were delicate, fragile creatures, then expecting children to devote their time to labor was immoral.

To be sure, few children were wholly free of familial responsibilities. The children of the poor and of immigrants, in particular, were expected to contribute either in the home or in a family business. Even within the middle class, very modest demands continued to be placed mainly on older children: to make their bed, pick up dirty clothes, and clear the breakfast or dinner table. Yet even these token demands were often met by passive or active resistance. In response, many parents in the early twentieth century instituted a bargain: compensating their children's participation in household responsibilities with an allowance.

Ironically, the very unwillingness of most contemporary middle-class parents to involve very young children in household chores contributes to older children's recalcitrance to perform household tasks. The prolongation of children's financial dependence (now extended for many well into their 20s) and the absence of many ways for children to express their growing competence, apart from sports, may contribute to some of the most frequently decried aspects of contemporary middle-class childhood. These include the embrace of undesirable emblems of maturation (such as smoking), the difficulty many young people have in cutting the emotional umbilical cord with their parents and establishing a truly independent identity, and the prolonged time it takes for the young to define a career direction (Lancy 2011; Ochs and Izquierdo 2009).

In the United States, where the overwhelming majority of children now live in dual-worker or single-parent households and where churn in adult relationships has greatly increased, with spouses, partners, and lovers entering and exiting households at a significantly higher rate than in western Europe, the exclusion of children from household responsibilities appears to be declining. Increasingly, parents expect older children to supervise younger siblings, monitor their homework, and assist with cleaning, cooking, shopping, and other household tasks. These children are expected to exhibit the traits of maturity and responsibility from an early age.

At the same time, intensifying opposition to extended juvenilization has appeared among US children themselves, who seem increasingly dissatisfied with the roles they have been assigned as full-time students and recipients of a commercial culture. Young people themselves crave a more useful, active, and meaningful role than can be found in teacher-centric schools, in consumerism, or in the largely passive consumption of popular culture.

It may well be that the useless child will prove to be an anomaly in the ongoing history of childhood.

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This article brings a much-needed perspective to the question of children's attainment of skills and use of these skills in labor. Lancy proposes that during the long period of time that characterizes human childhood, children in traditional cultures learn survival skills to the extent that by adolescence, if not earlier, they are nutritionally self-sufficient. This counters a long-held belief that children, at least those in late childhood and adolescence, are dependent on adults for survival. By late childhood or adolescence, they are quite competent.

Competence, however, is not excellence. A !Kung boy may kill his first large game at age 15–18, but it can take 10 years before a man is a highly productive hunter (Shostak 1981: 84), the kind of son-in-law the parents of marriageable girls are looking for. Social adolescence is a time when young people in traditional societies are moving closer to their future as adults and preparing for that time by expanding their vocational and social skills (Schlegel and Barry 1991).

In traditional societies, children's domestic and vocational skills are utilized by the family or are farmed out to other families as helpers or apprentices. Sequestration in school was rare and mainly for those in literate cultures whose later occupations required book knowledge. Even where schooling took up part of the day, children were often employed in the family farm or shop or as apprentices in various enterprises. This still occurs in family-run enterprises in modern industrial societies. Some modern nations, like the German-speaking countries of Europe, have regulated apprenticeship systems for adolescents in both job shops and large factories. Up to two-thirds of middle and older adolescents are in apprenticeships.

Adolescent peer groups have been employed for community labor in many societies, and this labor, when given tangible reward or at least community recognition, was for the most part enjoyed by the participants (Schlegel and Barry 1991). Solitary work, however, was often seen as drudgery and could be a source of conflict, as solitary corn grinding could be for Hopi girls (Schlegel 1973). In contrast, when two or more girls formed a corn-grinding "party," they chatted and sang corn-grinding songs together.

A difficulty in this kind of research, as Lancy points out, is determining chronological age, because in nonliterate societies or communities, the transition from social childhood to social adolescence usually depends on level of physical development. Biological adolescence is variable across cultures, and whether social adolescence tracks biological adolescence or begins earlier or later also varies (Schlegel and Barry 1991:

34–35). Age 15 is a reasonable chronological cut-off age in a cross-cultural study for the social transition from childhood to adolescence, although in modern cultures it is several years earlier. (In modern Western cultures, this age would be considered middle adolescence.)

An important point of this article is that vocationally skilled children provide a reserve labor force that can be exploited by their families or others, to the detriment of children's learning and health. However, there can be benefits to employing skills that contribute to family or community welfare. Learning to assess a task, plan for it, and persevere until it is completed contributes to self-regulation (Schlegel 2015). Cooperative children and adolescents gain the approval of adults, who can help them now and in the future. Contributing to family income makes children an economic asset to the family and may increase their value and the respect they are accorded. When groups of children or adolescents contribute to community welfare through community labor and are recognized for their contribution (Schlegel and Barry 1991), they become integrated into community life. Older children and adolescents benefit from working alongside adults on tasks and projects, in that they learn social skills by doing and observing and friendly adults can be an important social resource (for adolescents; see Schlegel 2011).

Work, the application of skills acquired through observation, practice, and play, has been an accepted part of children's lives for most people in most societies until about the mid-twentieth century, and it still is for most children in developing societies. When balanced by adequate time for play, rest, and, today, schooling and when children are rewarded with recognition for their efforts, work contributes to children's well-being. It increases their value to the family, their social integration into the community, and their self-esteem, as they see themselves as respected contributors to the groups important to them. It is the use of children as a reserve labor pool, as Lancy demonstrates, that causes harm. Sadly, this is sometimes necessary for self- or family survival.

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The "position text" of David Lancy, internationally recognized expert in the anthropology of childhood and children, is on the recurring but still problematic theme of children as a reserve labor force. It includes six sections, four figures, seven footnotes, and approximately 150 references. The analysis is mainly based on secondhand ethnographic and, to a lesser extent, historical data, mostly from "traditional" societies worldwide, that is, those living on agriculture, farming, hunting, fishing, and gathering.

Continuing the culturalist approach, Lancy takes his ethnographic examples from area files and an extensive bibliographic corpus, favoring elements related to a series of activities grouped under the concept of "work." Although no comparative anthropological perspective of this all-encompassing concept is proposed, the author includes in his definition of work tasks performed in the domestic sphere and productive livelihood activities such as those illustrated in the figures. Finally, although very detailed, the examples chosen rarely refer to the cash economy or, more broadly, to the global (cultural, social, economic, political) context of the societies discussed.

The author first reviews the links between biology and culture ("A Biocultural Perspective on Childhood"). He recalls the important disposition of the child to learn and to return what he or she learns from adults and other children. Conforming to the canons of developmental psychology, the author distinguishes different ages (early childhood, middle childhood, childhood), each marked by complementary acquisitions until the age of 15, the age at which one can no longer, according to the author, be considered a child.

Having established these biological markers, Lancy returns to the length of the process allowing the child to acquire the means of self-survival ("The Extended Period of Juvenility and Learning to Make a Living"). Unlike most animals, small hominids have considerable time to learn. In other words, the dependence in which they are vis-à-vis adults promotes learning and thus, ultimately, the reproduction of the group as a species. In this regard, Lancy speaks of "juvenability," a concept that requires more attention.

These considerations lead to discussion of the relationship between play and work in "traditional" societies, allowing it to reaffirm the importance of play in child development ("Children as Players and Helpers"). Following anthropologists, Lancy recalls that the distinction between the two concepts is clearly established in Western societies. In other societies, the child learns how to work and, when playing, is gradually involved in the activities of adults.

Analysis of the terms of the passage between help and work allows Lancy to return to a theme that is dear to the author but not explicitly mentioned: agency ("The Shift from Helping to Working"). In fact, the injunction of adults does not fully explain why a child is put to work. This is also due to repeated requests from the child who wants to participate in adult activities. The desire to learn is replaced by the child's desire to return the knowledge and skills acquired and to participate in the lives of adults by working.

When society meets accidents (wars, droughts, migration, etc.), the child is put to work ("Activating the Reserve Labor Force"). In the course of history, Western societies have promoted child labor in plantations, mines, and factories. One can also wonder if the "exploitation" of the child did not contribute to the emergence of children's rights in these societies. Today, in countries whose economies are based on a few agricultural export crops, it is notable that the timing of school holidays is in harmony with the harvesting of the crop, as

is the case in Ecuador (bananas, sugar, cocoa) and Guatemala (coffee, cardamom).

The implications of work on children, and more generally on their life cycle, are not negligible ("The Costs of Shortened Childhood"). According to Lancy, not only does work deprive children of play, which shortens their childhood, but it also bridles the development of their sexual and symbolic imagery during adolescence. Thus flouted, children become "premature adults." These considerations lead the author to want to enlarge the notion of childhood, without a clear proposal for doing so.

Finally, the text opens up many avenues for further thought and development. Here, one wonders whether it is possible to establish distinctions between learning, work, play, exploitation, or participation in different societies and eras (Nieuwenhuys 1994; de Suremain 2000; Schlemmer 2000). There is also the issue of parental, kinship group, or community expectations (Guidetti, Lallemand, and Morel 1997), as well as the reproductive projects of society (Godelier 2004) and their impact on the "treatment" of the child (Bonnet, Rollet-Échallier, and de Suremain 2012; Ségalen 2010): Are the children of the societies mentioned by Lancy treated less favorably than those in our own? Is it necessary for their own superior interests to hold the child away from the worst forms of exploitation as well as family labor practices?

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In this excellent article, based on diverse ethnographic material, Lancy proposes what he calls the "children as chattel" hypothesis (i.e., the hypothesis that children can serve as a reserve labor force), which explains a number of phenomena that are not obviously related as well as some that are seemingly contradictory. This enables us to establish a link between divergent perspectives on human childhood, particularly those that are biological and cultural, and thereby makes an important contribution to the anthropology of childhood, a rapidly growing subfield of anthropology in which Lancy is one of the leading scholars. In my opinion, Lancy's integrated approach has yet to receive the recognition that it merits. What follows is my account of the ongoing debate on these concepts, which may be of help in further elaborating Lancy's hypothesis and promoting discussion.

As Lancy showed in this article (see also Lancy 2014*b*: 254–292), there has been active debate on the relationship between labor and play among children. To enable comparison of the numerous ethnographic materials, some of which are referred to in the article, I prefer to reexamine these concepts in a more analytical fashion. Therefore, I set two criteria, namely, whether the surrounding people regard the focal activity of the children as obligatory and whether the children are required to provide immediate contribution to the unit of production and consumption (e.g., family or extended family) by engaging in the focal activity. By combining these two criteria, we can propose four categories that classify the activity. For example, most activities practiced by !Kung (also known as Ju|'hoan) children, including mimicking of hunting and occasional participation in trips to gather mongongo (*Schinziophyton rautanenii*) nuts, were regarded as nonobligatory, and the children were not required to make any immediate contribution to the household economy (Marshall 1976:313–362; Draper 1976). Most of the activities that are considered play would fall into this category. It should be noted that the category to which the actual activity is assigned can vary depending on the context of the given society. As reported by Draper and Cashdan (1988), under rapid social change, the period of dependency and freedom from responsibility was drastically shortened for !Kung children ("Activating the Reserve Labor Force"). Consequently, their activities shifted to more practical ones, which can be characterized as obligatory and making a substantial contribution to the household economy. One of the strong points of the children as chattel hypothesis is that it allows us to not only account for a variety of activities in which children across cultures engage but also illuminates the underlying structure that may support and transform the significance of the activity.

Lancy's article reacknowledges that the features of childhood are inseparable from those of the given society. Different societies may provide different necessities and opportunities for the children. In this respect, the relationship between childhood and society is more complex than has been assumed in previous studies. For example, it has frequently been accepted that parents in agricultural and pastoral societies actively involve children in subsistence activities and utilize them as workers earlier than do parents in hunter-gatherer societies. However, a systematic survey of children's contributions to subsistence across a range of societies revealed that children's work effort varied with factors other than whether a child was a forager, agriculturalist, or pastoralist (Kramer and Greaves 2011; "The Extended Period of Juvenility and Learning to Make a Living"). Such findings suggest that the assumption that ecology and subsistence patterns determine the patterns of child care and children's activities should be reconsidered (Takada 2005, 2015). Each society has developed a set of norms with respect to child care and children's activities. It is this institutional aspect of the society that provides the framework regarding what is and is not obligatory for the children and subsequently affords the necessity and opportunity that lead the people around the children to utilize them as a reserve labor force.

Hence, to better understand the organization of child care and children's activities, we should further analyze from an integrated perspective the interplay between the ecology and subsistence patterns, the formation of social institutions, and the practices of face-to-face interactions. Such analysis will

enable us to explore several issues not included in Lancy's article. For example, how is consensus to restrict or prohibit child labor achieved, even in situations where child labor may bring a considerable profit for people surrounding the children? What determines why some children are involved in a certain activity while others are excluded within the same society? That is, what generates and reproduces the social stratification of children within a society? Considering that childhood provides one of the most promising avenues to investigate human sociality, Lancy's article illuminates a promising path to direct future research.

Reply

Bernstein takes me to task for failing to acknowledge that the development of skill and proficiency continues throughout the life span and certainly through the teens. I chose to focus on the half-full glass of child competence rather than the half-empty glass of relatively low productivity. I would argue, however, that at any age an individual can ratchet up productivity in response to need. However, the ratchet effect or elasticity is probably much more substantial for children in middle childhood than earlier in the life span—a point made by Bjorklund.

Bernstein also identifies a critical point, which I have not dealt with adequately, namely, the very different trajectories of girls and boys. She focuses on the sociosexual forces that aim these trajectories, whereas I have focused almost exclusively on the different trajectories engendered by different subsistence patterns and the nature of the domestic labor force.

Another important contextualizing factor—noted by Crittenden—is that variability in the nature of subsistence (i.e., access to and ease of harvesting resources) may severely limit a child's ability to increase output. This gulf appears to be particularly wide for Hadza versus !Kung child foragers, where the former can be much more productive at an earlier age. Another related factor must be the length and steepness of the learning curve. Some forms of food acquisition require great skill (honey collection), strength (bow-hunting), or dexterity. Additionally, I think the data is bound to be noisy as it is hard to separate out the child's productivity during unguided, unsupervised "helping" and their productivity in involuntary chore assignments (Stieglitz et al. 2013). Both the Aka and the !Kung are noted for exempting children from making any substantial contributions toward provisioning themselves and others, and yet cases are reported in both societies of voluntary self-provisioning (Boyette 2013; Howell 2010). Children are endowed with powerful drives—to become competent, to fit in, and to cooperate—that may lead them to contribute beyond any implicit expectations of the family (see de Suremain's comment).

I am grateful to Del Giudice for appropriately complicating my argument. Basically, I throw the precocious productivity phenomenon into the same basket as accelerated life history. The chronic stress and insecurity that may trigger a shift to a "fast track" life history (Schlegel 2013) may exist independently from any resource or labor shortage. And, of course, the child's dramatically increased contribution to family needs may strengthen family ties and support a continuation of the "slow track" trajectory. Middle childhood may be the critical period during which maturing cognitive processes enable the child to make a finer calculation of the trade-offs in life history decisions (Del Giudice and Belsky 2011).

I appreciate Lawson and Hedges bringing up an important issue that space constraints prevented me from addressing. And that is the other side of the elasticity coin, so to speak, where plentiful resources may lead to a considerable delay in the child's assumption of tasks (not limited to food acquisition) that support the household. Indeed, in WEIRD society (Henrich, Heine, and Norenzayan 2010), there is growing evidence that privileged children may remain in a state of complete material dependency well into young adulthood (Lancy 2014*b*:71–73). I quite agree with and applaud Lawson and Hedges' point that the international condemnation of child work and valorization of schooling is misguided and poorly validated. I would encourage the reading of Susan Shepler's brilliant study of the "rehabilitation" of former child soldiers in Sierra Leone. She says,

> Look at the irony of the situation: the lack of opportunities for young people and the inherent structural violence of the education system lead to "a crisis of youth" that leads to war. The proposed solution is to continue with the flawed ideologies of Western schooling and heal the young combatants with the almost magical application of education. Education has become the default solution for any problem of youth in the liberal Western framework. (Shepler 2014:96)

My first reaction to Mintz's wonderful commentary is that historians have even cooler anecdotes (2-year-old Lincoln at work on the farm) than anthropologists. More seriously, Mintz's argument regarding the decline of child labor in the West can be usefully juxtaposed with Lawson and Hedges' main point. That is, all other things being equal, children's work is facilitated—even required—by the dictates of broad structural processes. Condemning child labor without considering its "roots" and absent the broad cultural changes that facilitate a decline in child labor, which Mintz describes, may do more harm than good.

Mintz also makes a more speculative but compelling argument that by purifying children's lives of the contaminating effects of work, we may have robbed them of very important developmental opportunities. For example, the very notion of "doing chores" implies doing them competently or incompetently, dependably or not, having a real and

positive impact on other family members or not, and so on. Somehow these sorts of challenges and goals seem more real and developmentally significant than those afforded by playing a sport. Schlegel makes a similar point: "Learning to assess a task, plan for it, and persevere until it is completed contributes to self-regulation."

Schlegel also introduces a critical topic that is missing from the target article. I am referring to her discussion highlighting "good" chores versus "bad" chores. That is, we tend to either condemn children's work out of hand or acknowledge its value to the family and the children themselves. But not all chores are created equal. Some jobs are not welcomed because, as Schlegel notes, they must be done in the absence of others. Other chores such as herding may involve long-distance travel and exposure to privation and danger. Some are unattractive because the work is repetitive, tiring, and lacking in opportunities to expand or improve one's skill set (Bock 2002).

As de Suremain correctly notes, my gaze is largely retrospective. But the reserve labor force phenomenon is very evident in contemporary societies. Social issues like child-headed households; street children; parents encouraging their offspring to become sex workers, street sellers, and poorly paid laborers; and the increased circulation of children to make the most of their labor all arise from the need or desire of the impoverished family to turn a debit into an asset (Lancy 2014*b*:378–385). de Suremain also calls attention to the complex ethical and moral quagmire created by the employment of children—domestically or at a distance. But my position is that the "call-up" of children from their reserve position implies a temporary or at least contingent set of circumstances (Stieglitz et al. 2013) that is not the normal state of affairs. The default status of children as workers is that they exercise agency in what they choose to learn, whether through emulation or play, and that they are able to learn at their own pace without the oppressive effects of teaching: "Children did not evolve to sit quietly at desks in age-segregated classrooms being instructed by unrelated and unfamiliar adults" (Bjorklund 2007*b*:120). They also exercise considerable autonomy in deciding how to employ their newly acquired capabilities and for whose benefit.

Takada contributes two critical ideas to this discussion, one analytical, the other empirical. He goes beyond identifying critical variables that define the nature of children's work to speculating on how these variables interact to create four possible states or classifications. To take just one important but understudied interaction, there is the multivariate equation that includes the child's age and general competence (a 2-year-old is unlikely to be tapped for sib-care, boys less likely than girls), whether the child is performing the task voluntarily or under some compunction (which influences perceived value, motivation, and affect), and the composition of the domestic workforce, which, if inadequate or strained, may lead to more work and less play (or schooling) for some members (girls conscripted before boys).

The empirical program that Takada calls for is the investigation of broader social forces such as "how consensus to restrict or prohibit child labor is achieved." Mintz provides a response to the question from history, but there is a growing corpus of comparative and long-term anthropological research—mostly in Mexico and Central America—that seems to suggest a tipping point. That is, in relatively unacculturated, unschooled peasant communities, children's domestic work is still highly valued and expected even as children attend school. At the same time, when members of those communities migrate to more sophisticated urban centers and are exposed, over several generations, to more extensive formal education, they no longer expect their children to "help out" or do chores. Domestic work is replaced with schooling, leisure, and extracurricular activity (Alcalá et al. 2014; Rogoff, Correa-Chávez, and Cotuc 2005).

—David F. Lancy

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