Policy and Parental Practices: Should Traditional Childhood Fostering be Banned?

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May 2026

Abstract

Do traditional childrearing practices conflict with modern development objectives? This paper explores this question in the context of child fostering – a longstanding practice that remains widespread throughout much of sub-Saharan Africa. Drawing on a unique survey of more than 3,200 biological siblings that we conducted in Benin in 2022, we provide the first assessment of the later-life consequences of childhood fostering. Across a range of socioeconomic outcomes, we find no evidence that the practice imposed lasting harms on children who were sent out. Fostered individuals enjoyed better labor market outcomes and had lower fertility rates than their non-fostered siblings. They also maintained strong social ties to their biological siblings, despite living farther from family members in adulthood. Applying a simple model of parental investments in the presence of fostering, we show that the empirical results establish that policy interventions aimed at restricting the practice of childhood fostering are likely to be detrimental to the later-life outcomes of both fostered and non-fostered siblings.

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1 Introduction

Traditional social structures and family practices play a key role in shaping modern economic outcomes (Alesina and Giuliano, 2014; Ashraf, 2009; Moscona, Nunn and Robinson, 2020; Lowes, 2022). Social norms regarding the organization of the household, parenting, and the roles and obligations of family members can persist, even as the context in which they are practiced is transformed by economic development (Fernandez, 2007; Giuliano, 2007; Alesina, Giuliano and Nunn, 2013). As a result, traditional childrearing practices may be maintained, even when they are harmful to modern development outcomes. In such settings, policy intervention aimed at discouraging the practice may be desirable (Wendo, 2014; World Bank, 2015).

Child fostering may be an example of one such practice. There is a longstanding tradition of child fostering in sub-Saharan Africa, a practice that has been linked to historical norms of strong kinship ties and communal responsibility for raising children (Goody, 1982; Bledsoe, 1994).[1] Unlike state-run adoption processes, child fostering is a *voluntary* arrangement in which children are usually sent out to live with extended family members or family friends. Although researchers have long argued that economic development would lead to a shift away from traditional childrearing practices (Isiugo-Abanihe, 1994; Ocholla-Ayayo, 1997; Wuso and Isiugo-Abanihe, 2006), child fostering remains widespread throughout sub-Saharan Africa.[2]

Policymakers, international organizations, and NGOs have all voiced concerns that the continued prevalence of child fostering may be detrimental to modern development goals, such as expanding children's future economic opportunities and reducing gender inequality (Bada, 2000; UNICEF, 2002; Howard, 2008; Feneyrol, 2011). While the practice may confer benefits to biological family members including the ability to mitigate risk and respond to changing in household circumstances, greater prestige, and strengthened social ties (Goody, 1982;

[1] A large body of anthropological and ethnographic research has documented the practice across a wide range of ethnic groups including both matrilineal and patrilineal kinship networks (see Section 2).

[2] In the most recent waves of the Demographic and Health Surveys (DHS) for 35 countries in sub-Saharan Africa, 20 percent of mothers report that at least one biological child aged 0 to 12 does not currently reside with her biological family. Because the estimates provide a snapshot view of child fostering, they understate the likelihood that a family will ever send a child out.

Ainsworth, 1996), these gains may come at the expense of further marginalizing vulnerable family members. In particular, there is anecdotal evidence that the practice is harmful to the later-life outcomes of children who are sent out, as fostered children – particularly girls – are deprived of educational opportunities and required to work for fostering families in exchange for financial or other remuneration paid to their biological parents. As a result of these concerns, there have been growing calls for countries to enact policies that discourage or ban the practice (UNICEF, 2002; ILO, 2021).

In this paper, we study both theoretically and empirically whether government policies aimed at restricting or banning childhood fostering will improve children's later-life socioeconomic opportunities. We develop a simple theoretical framework in which parents make decisions over the human capital investment and fostering status for each of their biological children, trading off their own consumption against children's later-life income.[3] In general, the decision to foster has ambiguous effects on children's long-run welfare. Indeed, we find that altruistic parents may optimally choose to foster even if it reduces the later-life socioeconomic opportunities of both their fostered and non-fostered biological children, as critics of the practice have warned.[4] In such scenarios, a policy that bans fostering, while detrimental to parents, can improve children's later-life socioeconomic outcomes.

Although theory is generally ambiguous as to the desirability of government intervention, we can apply the framework to derive a **sufficient statistic** under which a ban on childhood fostering is strictly harmful to children's later-life socioeconomic outcomes. In particular, we show that whenever later-life incomes of fostered children are weakly larger than those of their non-fostered siblings, a ban on the practice will lower average future incomes across *all* children. This result holds regardless of parents' decision rules over which children to send out, and does not depend on whether there is positive or negative selection into fostering on the basis of children's future earnings potential. Notably, the result also does not depend on the underlying

[3] Although the model focuses narrowly on income, this variable is meant to reflect children's future socioeconomic status more broadly defined.

[4] Intuitively, even though they hold altruistic preferences towards their offspring, because parents also value their own consumption, the later-life costs of fostering borne to each child are not fully internalize by parents.

levels of parental altruism.[5] We show that whenever this condition holds a ban on fostering will a) decrease later-life incomes of children who would have been sent out to be fostered, b) decrease later-life incomes of children with the lowest future earnings potential, and c) decrease average later-life incomes across all biological children. Thus, while the impacts of fostering on children's welfare are generally ambiguous, if the future socioeconomic status of fostered children exceeds that of their non-fostered siblings, a ban on the practice is predicted to be harmful to both children on average, and to the most vulnerable family members.

In the second half of the paper, we explore the empirical content of this sufficient statistic: are later-life incomes of fostered children weakly larger than those of their non-fostered siblings? To this end, we compare cross-sibling differences across a range of later-life socioeconomic status indicators including several occupational outcomes, fertility, and migration patterns. Crucially, these tests allow us to assess the welfare implications of future government policies aimed at restricting childhood fostering, despite the fact that this legislation has *never* actually been enacted in any country in Sub-Saharan Africa.

A key challenge to any empirical investigation of the long-term consequences of childhood fostering is that standard survey data do not allow researchers to link biological siblings in adulthood, nor do they provide information on childhood fostering status. To overcome this limitation, we draw on a unique survey of more than 3,200 adults from roughly 1,000 biological families that we conducted in Benin in 2022. The survey provides detailed information on childhood fostering status along with a range of later-life socioeconomic outcomes including occupation, migration status, fertility, completed education, and intrafamily social interactions. To the best of our knowledge, this is the first dataset that tracks outcomes for *all* biological siblings – both fostered and non-fostered – into adulthood.

We combine the survey data with a sibling fixed effects regression framework to compare differences in later-life outcomes across fostered versus non-fostered siblings. We use these regression estimates to construct a series of one-sided confidence intervals that allow us to

[5]Intuitively, this is because parents with low levels of altruism will invest little in their children, regardless if they send their children out to be fostered or if they are required to retain them in the biological home.

explore whether later-life socioeconomic outcomes of fostered children are no worse than their non-fostered siblings. These tests enable us to assess the welfare consequences of restrictions on the childhood fostering, despite the fact that the regression estimates themselves do not necessarily provide unbiased estimates of the causal impacts of fostering on later-life outcomes. Crucially, the test of the model's sufficient statistic does not require that differences in outcomes across siblings be *attributable* to fostering. Thus, standard confounders, such as within-family selection into fostering or cross-sibling spillover effects, will not bias the results of this test.

We find that fostered children weakly dominate their non-fostered siblings across a range of later-life labor market outcomes. In comparison to their non-fostered siblings, individuals who were sent out during childhood are significantly more likely to work in salaried jobs and less likely to work in lower-skill occupations. Fostered siblings are also substantially more likely to live outside of the country in adulthood, a pattern that is consistent with the broader Beninese migration patterns, in which emigrants are drawn to better labor market opportunities in neighbouring countries (Todegnon, 2011). These improved long-run labor market outcomes do not appear to have been driven by increases in educational attainment. If anything, we find that fostered children have slightly lower schooling levels than their non-fostered siblings.[6]

We find no evidence that childhood fostering is associated with higher later-life fertility rates. In fact, our preferred point estimates imply that fostered individuals have 12 percent fewer children than their non-fostered siblings. These patterns align with the fact that Benin is currently in the midst of its demographic transition, in which higher socioeconomic status individuals have fewer children (Vogl, 2016; World Bank, 2022).

Together, these patterns are consistent with the model's sufficient statistic, and suggest that government policy aimed at restricting childhood fostering is likely to harm to children's later-life socioeconomic outcomes. Nevertheless, these average estimates may mask considerable long-term harms among specific subpopulations. In particular, whereas sons may benefit

[6]These education estimates may reflect *both* human capital investments made by the child's biological and adopting families, and we cannot distinguish whether the relative decline reflects lower levels of schooling after the child leaves the household or pre-emptive changes in human capital investments made by biological parents.

from fostering due to greater access to job training and human capital investments, the practice may reduce daughters' educational opportunities due to domestic work requirements in their adoptive homes (Ainsworth, 1996; Roby, Shaw and George, 2014). To assess this possibility, we re-estimate these tests by gender. For both males and females, we find no evidence that childhood fostering is associated with any long-run socioeconomic disadvantage. In fact, fostering status is associated with *larger* declines in fertility and low-skill employment among women. Thus, even among vulnerable subpopulations, we find no evidence that policy intervention to restrict fostering would be beneficial.

Despite the absence of evidence that children are harmed by the practice, restrictions on fostering may be justified based on the goal of maintaining strong social ties among biological siblings.[7] To assess this possibility, we examine the frequency of interaction between fostered and non-fostered siblings in adulthood. we find no evidence that fostered siblings were less likely to have talked with a non-fostered sibling in the previous month, although they were less likely to have met face-to-face. The fact that fostered children continued to interact frequently with their biological siblings is particularly striking, given that their higher rates of emigration from Benin imply a greater *physical* distance. These findings suggest that the practice did not substantially inhibit the maintenance of strong social ties across biological siblings.

Together, our findings suggest that policy efforts aimed at restricting the practice of childhood fostering are unlikely to be welfare enhancing. In contrast to state-based foster care systems in many developed countries, fostering decisions throughout Sub-Saharan Africa are made at the household level, based on informal arrangement between biological and fostering families based on specific family considerations.[8] The ubiquity of the practice suggests its widespread appeal, and researchers have identified numerous benefits to biological families

[7] Of course, greater social distance between fostered and non-fostered siblings may be counteracted by the social ties formed between fostered children and their adoptive families.

[8] In state-based systems, children may be removed from their biological families in response to concerns regarding abuse or neglect. In these situations, fostering status is determined by case workers, who must balance the desire for family preservation against the need to protect children (Bald et al., 2022). Empirical studies of these state-based systems have identified the causal effect of foster care for *marginal* children, for whom there is ambiguity across case workers about whether fostering is necessary (Doyle Jr., 2008, 2013).

including risk-mitigation, financial remuneration, and social prestige (Ainsworth, 1996; Goody, 1982; Roby, Shaw and George, 2014; Beck et al., 2015; Akresh, 2009). Despite these household-level gains, policy intervention could still be warranted if the practice imposes significant costs on children who are sent out. We find no evidence of these socioeconomic costs. Instead, our empirical findings suggest that children's later-life outcomes are generally improved by the practice, suggesting that bans on fostering are likely to decrease the economic opportunities across both fostered and non-fostered children.

This paper contributes to the literature on child fostering in sub-Saharan Africa. There is a large literature in anthropology and sociology that seeks to understand the causes and consequences of child fostering (see Ariyo, Mortelmans and Wouters, 2019, for a review). Most of this research is qualitative analysis, or assessments based on cross-household comparisons.[9] Economists have relied on the within-biological family research design to study the contemporaneous effects of child fostering on school attendance and consumption inequality (Akresh, 2006; Beck et al., 2015; Penglase, 2021). We build on this research by providing the first assessment of the long-run consequences of the practice. Our paper is also related to previous research studying how economic incentives influence the decision to send a child out (Serra, 2009).

More broadly, this paper contributes to the literature on intra-household inequality. A number of researchers have studied the allocation of assets within households, and explored how within-household inequality can influence population-level measures of inequality and poverty (see, Dercon and Pramila, 2000; Dunbar, Lewbel and Pendakur, 2015; Brown, Ravallion and van de Walle, 2019, for example). This research has been based exclusively on intact family units, which may not reflect the realities of kinship arrangements in many developing countries.

[9]Researchers have also compared outcomes between fostered children and children in the receiving family (e.g., Case, Lin and McLanahan, 2000; Zimmerman, 2003). Nevertheless, these comparisons are hampered by unobservable differences in genetic or health endowments that may differ across the two groups of children.

2 Fostering in Sub-Saharan Africa

The practice of childhood fostering is widespread in sub-Saharan Africa. Early work by anthropologists found that in west and southern Africa, between 16 and 25 percent of children were fostered away from their biological family at any particular time (Goody, 1982; Page, 1989). Despite predictions that economic growth would lead to the nuclearization of African families and a shift away from shared childrearing (Isiugo-Abanihe, 1994; Ocholla-Ayayo, 1997; Wuso and Isiugo-Abanihe, 2006), the prevalence of child fostering has remained remarkably stable over time (Cotton, 2021). Contemporaneous rates of fostering vary, but in most countries more than one in four households send a child out to be fostered (Roby, 2011).

The prevalence of fostering is consistent with a longstanding tradition of communal responsibility for raising children in many sub-Saharan countries (Goody, 1982; Bachan, 2014; Lachaud, LeGrand and Kobiané, 2016). Fostering is usually arranged informally, with children typically sent out to extended family members or family friends without intervention from state authorities. In some cases a formal contract may be written to specify whether the child will work, go to school, or learn a trade, and whether there will be any form of monetary transfer between the biological and fostering families. The duration of childhood fostering varies widely from a period of several months to many years (Isiugo-Abanihe, 1985).

Researchers have identified a number of motivations to send a child out. Fostering may be used as a coping mechanism, and parents may send a child to be fostered in response to a negative economic shock, conflict, or family breakdown (Goody, 1982; Akresh, 2009; Beck et al., 2015). Several researchers have argued that fostering is a form of child labor, in which children are sent out in exchange for financial resources, or in an effort to obtain greater social prestige or cement social ties (Ainsworth, 1996; Roby, Shaw and George, 2014). Relatedly, Akresh (2009) shows that the gender composition of children among the biological family is linked to the practice of fostering, with daughters having a higher probability of being sent out.

Other research has emphasized the benefits of being fostered. Scholars have argued that

fostering enables children to benefit from both formal and informal job training, and to access networks that may ultimately improve upward mobility (Goody, 1982; Isiugo-Abanihe, 1985). Relatedly, when school access is limited, biological families may foster children to promote educational opportunities (Isiugo-Abanihe, 1985; Zimmerman, 2003; Akresh, 2009).

There is a long history of child fostering in Benin. The tradition, known as *vidomegon*, has long been practiced by the Àjá-Fòn and Yoruba-Nagô, and has been viewed as an ancestral mode of socializing the child (Hounyoton, 2013). Modern rates of fostering in Benin are comparable to other sub-Saharan countries. In our dataset, 35 percent of families fostered at least one children, and roughly 16 percent adults report having been fostered during childhood. These numbers are consistent with the shares of young children who are reported not to live with their biological parents in successive waves of the DHS for Benin (Dohouin and Gbeholo, 2024). Among families who sent a child out, the modal outcome was to foster just one child, and just 12 percent of fostering families sent all their children out. In the majority of cases, the decision to foster all children coincided with the death of one or both parents.

In Benin, like other sub-Saharan countries, policymakers have voiced concerns about the practice of childhood fostering. Official reports have emphasized the exploitative nature of fostering for children who are sent out (UNICEF, 2002; ILO, 2021). There have also been recent attempts by the Beninese government to discourage the practice. Despite these efforts, there is no direct empirical evidence on the long-run socioeconomic impacts of the practice.

3 A Simple Model of Childhood Fostering

In this section, we develop a simple model of human capital investments in a society in which fostering may be practiced. Children may differ in the innate endowments, and parents face a tradeoff between their own consumption and investment in their children's human capital. Alternatively, parents can choose to send a child out, in which case her later-life income does not depend parental investments, but instead is determined exogenously by the host family

environment.[10]

This setup is motivated by the anthropological literature which emphasizes how the practice of fostering may be used to improve the living conditions among biological family members (Goody, 1982; Ainsworth, 1996). It also reflects the viewpoint of critics of the practice, who emphasize how these economic gains come at the expense of fostered children's welfare. Thus, the model captures the fact that the decision to foster one child may generate spillovers onto other siblings.

We apply this framework to assess conditions under which a ban on childhood fostering may enhance children's welfare. We derive these conditions for a) average welfare across all children, b) average welfare across fostered children, and c) welfare for the children with the lowest future earnings potential. Finally, we develop a sufficient condition under which a ban on childhood fostering will be strictly harmful to the welfare of each of these three groups.

3.1 Setup

We consider a household with $n > 0$ children.[11] We assume a unitary decision-making model, in which forward-looking parents jointly decide how to allocate resources across themselves and their biological offspring.[12] Parents choose their own consumption level, c, whether to foster each child i in the household, $\delta_i \in \{0, 1\}$, and the level of educational investment made in every non-fostered child, e_i.[13] These decisions, in turn, determine the later-life income of each child, w_i, which given by the following expression:

[10] Our setup differs from the framework developed by (Serra, 2009), which focuses on human capital investments and fostering decisions across children with the same underlying endowment. By allowing for endowment heterogeneity, our framework enables us to assess the welfare consequences of fostering bans across regimes in which children are both positively or negatively selected into fostering.

[11] As in Ainsworth (1996); Serra (2009), we assume the number of children is fixed. Our main theoretical predictions are also obtained in a generalized version of the framework with endogenous fertility decisions.

[12] The setup is equivalent to a framework in which fostering decisions are made exclusively by mothers, as has been documented in several different contexts in Africa (Lallemand, 1976; Ekejuiba, 1995).

[13] Consistent the early ages at which children are typically sent out (the mean age of fostering in our sample is six), we assume that parents do not invest in the education of fostered children.

$$w_i = \begin{cases} w_i^H = \mu_i^H + v(e_i) & \text{if non-fostered } (\delta_i = 0) \\ w_i^F = \mu_i^F + k & \text{if fostered } (\delta_i = 1) \end{cases}$$

Child i's later-life income, w_i, depends on whether parents decided to send her to be fostered, $\delta_i \in \{0, 1\}$, the level of parental educational investment, e_i, the (exogenous) investment made by the fostering family, k, and her idiosyncratic human capital endowment, μ_i^j, which may vary according to whether the child remains in the biological home or with the fostered family.

We assume that parents' utility function is given by the following expression:

$$U\Big(c, \{e_i, \delta_i, \mu_i\}_{i=1\ldots n}\Big) = \beta u(c) + \sum_{i=1}^{n} \Big[(1-\delta_i)(\mu_i + v(e_i) + d) + \delta_i(\mu_i + k)\Big],$$

where parents have standard altruistic preferences, with $\beta > 0$ capturing the degree to which they own consumption, c, relative to the value children's future income. Parents utility is thus increasing strictly with their own consumption and the incomes of their biological children. We assume that the functions u, v, are differentiable functions with $u' > 0, u'' < 0$ and $v' > 0, v'' < 0$. The term $\sum_{i=1}^{n}(1-\delta_i) \cdot d$ reflects parental preferences to retain children in the biological household, which increases linearly with the number of children remaining in the biological home.[14]

Parents maximize utility by choosing their own consumption, c, and fostering status and educational investment for each child, $\{\delta_i, e_i\}_{i=1,\ldots,n}$, subject to the following budget constraint:

$$c + p\sum_{i=1}^{n} e_i \leq y,$$

where p denotes the relative price of educational investments and y denotes household income.

Notice that educational investments are independent of innate human capital endowment, so that $e_i^H = e$ for all children who remain at home ($\delta_i = 0$), while $e_i^F = 0$ for all children who

[14] The main results derived in Sections 3.2 and 3.3 hold for any function, $D\big(\sum_{i=1}^{n}(1-\delta_i)\big)$ such that $D'(\cdot) \geq 0$, including the possibility that $d = 0$.

are sent out ($\delta_i = 1$). We can also define $m < n$ the number of children parents choose to retain in the biological household.[15]

Given this setup, it is straightforward to show that the number of children sent out to be fostered is non-increasing in parental income (see Appendix A.2). Intuitively, rising parental incomes relaxes the household budget constraint, allowing families to retain a larger number of children in the household.[16] This prediction is supported by existing evidence showing high rates of fostering among lower socioeconomic status families (Ainsworth, 1996; Goody, 1982; Roby, Shaw and George, 2014; Beck et al., 2015; Akresh, 2009), and our own empirical evidence (see Section 5). Increases in parental altruism (decreases in β) is also associated with lower rates of child fostering (see Appendix A.2), as parents are more willing to forgo own consumption to boost the future consumption of their offspring.

These two previous results offer potential explanations as to why children from non-fostering families may enjoy better later-life socioeconomic outcomes than those from fostering families (see Table 1). Nevertheless, these findings need not imply that the practice of fostering is harmful to children's future economic opportunities. Indeed, it is theoretically unclear whether future wages of fostered children will exceed those of their non-fostered siblings: $\bar{w}_i^F - \bar{w}_i^H \gtrless 0$. A positive wage gap could arise through selection, if parents disproportionately sent out children with higher innate endowments. This positive wage gap can even emerge absent these selection forces: given the utility cost to sending children away ($-d$), parents optimally choose to retain a child in the biological home at the expense of her future income. In the next section, we explore settings under which restrictions on fostering may or may not be beneficial to children's later-life outcomes.

[15] For simplicity, we focus on an interior solution in which parents make strictly positive investments in non-fostered children and choose to retain at least one child in the biological home.

[16] This result is analogous to predictions from standard fertility models, in which rising incomes leads to increases in family size (Jones, Schoonbroodt, and Tertilit, 2011).

3.2 Can fostering bans enhance children's future economic opportunities?

In this section, we apply the theoretical framework to study the consequences of a fostering ban for children's later-life incomes. In particular, we ask whether the concerns raised by policymakers have merit: Are there scenarios under which a ban on fostering will improve children's future economic opportunities? We explore this question allowing for multiple different selection processes into fostering, including when fostering status is independent of child ability, and when there is positive or negative selection into fostering.[17]

Proposition 1. *(No selection into fostering). Suppose that each child has an innate idiosyncratic human capital endowment, μ_i that does not vary across the home versus foster family environment, so that $\mu_i^H = \mu_i^F = \mu_i$. Then:*

(i) Children will be selected into fostering independently of their innate abilities: $\mu_i \perp\!\!\!\perp \delta_i$.

(ii) There exist functions u, v, D such that a ban on fostering will:

(a) increase the average income of fostered children;

(b) increase the minimum between fostered and non-fostered children's average income;

(c) increase the average income of all children.

Proposition 1 establishes that there may be settings under which a ban on fostering improves children's future economic opportunities. Proposition 1 ii(a) shows that fostered siblings may be made better off under a ban on the practice. Proposition 1 ii(b) establishes that the siblings with the *lowest* future earnings may also benefit from a ban. Intuitively, parents may choose to send out a child at the expense of her future potential income in an effort to increase human capital investments among the remaining siblings. In such a scenario, the fostered child could be made better off if the government imposed a ban on the practice.

Proposition 1 ii(c) establishes that there may be scenarios in which a ban on fostering in-

[17] For these analyses, we also relax the assumption of linearity over the function $D(\cdot)$, instead assuming only that parental utility is non-decreasing in the number of biological children retained in the home, $D'(\cdot) \geq 0$.

creases future incomes across *all* children. Why would altruistic choose voluntarily to reduce the future earnings potential of their children? Although parents value their children's future wellbeing, they must tradeoff children's human capital investments against their own consumption. Access to fostering eases this constraint, allowing parents to increase utility: the weighted average of contemporaneous consumption and children's future incomes. Nevertheless, because parents value *both* their own consumption and children's future wellbeing, there may be scenarios in which they are willing to forgo children's future earnings potential in an effort to boost current levels of consumption. In such cases, a ban on fostering may increase children's average future earnings.

In the next two propositions, we establish that results from Proposition 1 ii(a) - ii(c) hold in cases of both negative selection into fostering (when children with lower underlying human capital endowments are sent out), and cases of positive selection into fostering (when children with higher underlying human capital endowments are sent out).

Proposition 2. *(Negative selection into fostering). Suppose that children's innate human capital endowments differ across home and fostering family environments, such that* μ_i^H *varies idiosyncratically across children, but* $\mu_i^F = \mu^F$ *is constant for all children* $i = 1, ..., n$*. Then*
(i) Children will be negatively selected into fostering on the basis of their innate abilities: $\mu_i \leq \mu_j$ $\forall\ \delta_i > \delta_j$*.*
(ii) There exist functions u, v, D *such that a ban on fostering will:*
(a) increase the average income of fostered children;
(b) increase the minimum of either fostered or non-fostered children's average income;
(c) increase the average income of all children.

Proposition 3. *(Positive selection into fostering). Suppose that children's innate human capital endowments differ across home and fostering family environments, such that* μ_i^F *varies idiosyncratically across children, but* $\mu_i^H = \mu^H$ *is constant for all children* $i = 1, ..., n$*. Then*
(i) Children will be positively selected into fostering on the basis of their innate abilities: $\mu_i \geq \mu_j$ $\forall\ \delta_i > \delta_j$*.*

(ii) There exist functions u, v, D such that a ban on fostering will:

(a) increase the average income of fostered children;

(b) increase the minimum of either fostered or non-fostered children's average income;

(c) increase the average income of all children.

Together, these theoretical results demonstrate that it is generally unclear whether restrictions on child fostering promote children's future economic opportunities. Indeed, the findings show that the concerns of policymakers regarding the practice may have merit: there may indeed be settings in which utility maximizing altruistic parents make decisions that are ultimately harmful to the future economic opportunities of their children.

3.3 A sufficient statistic under which fostering restrictions harm children's future economic opportunities

In this section, we apply the previous framework to derive a **sufficient statistic** under which a ban on fostering *reduces* children's future economic opportunities. We show that this statistic holds regardless of whether children are negative or positively selected into fostering.

Proposition 4. *. Suppose that children's innate human capital endowments follow one of the cases outlined in Proposition 1, 2, or 3. Suppose that at the solution to the parents' optimization problem average fostered children's income is weakly larger than the average income of non-fostered children: $\bar{w}^F \geq \bar{w}^H$. Then a ban on fostering will:*

(a) decrease the average income of fostered children;

(b) decrease the minimum of either fostered or non-fostered children's average income;

(c) decrease the average income of all children.

Proposition 4 provides a sufficient statistic under which a ban on fostering will reduce children's later-life economic outcomes. Proposition 4(a) establish that whenever average fostered children's income exceed those of their non-fostered siblings ($\bar{w}^F \geq \bar{w}^H$), a ban will strictly reduce their future earnings. Intuitively, a ban will force parents to retain these children in the

household. As a result, their incomes will fall to (lower) levels of their non-fostered siblings. Moreover, to the extent that parents invest in children's human capital, $e^* > 0$, the additional constraint of investing in more children will mean that average levels of human capital investment across all siblings will decline under a ban. Thus non-fostered children will experience a decline in later-life incomes as a result of a ban (Proposition 4(b)). As a consequence, average later-life incomes across *all* children will decline as a result of a ban (Proposition 4(c)).

The results in Proposition 4 hold regardless of the selection process into fostering. Importantly, the derived sufficient statistic does not require that we take a stand on *why* average fostered children's income is weakly larger than average non-fostered children's income. Thus the framework provides an empirical test for the consequences of a fostering ban that does not require us to estimate the causal impact of fostering on children's later-life outcomes. In the remain part of the paper, we combine a novel survey with a within-sibling research design to asses whether this condition holds across families in Benin.

4 Survey Design, Data Quality, and Descriptive Statistics

4.1 Survey Design and Implementation

Our empirical analysis is based on an original dataset that derives from a field survey that we designed and conducted in Benin in 2022 (see Dohouin and Gbeholo, 2024, for details).[18] Crucially, as we describe below, the survey design allows us to identify socioeconomic outcomes for *all* siblings from the same biological family in adulthood, regardless of past fostering experience.

The survey questionnaire was conducted in Benin 2022, and was run in conjunction with the National Statistics Agency of Benin (INStaD-Benin).[19] We randomly surveyed a sample of 1,300 households from the capital district (Cotonou) and two neighboring municipalities

[18]The survey was originally conceived and conducted by Dohouin and Gbeholo (2024).
[19]We trained a team of INStaD-Benin enumerators to implement the questionnaire.

(Abomey-Calavi and Seme-Kpodji).[20] Each household was visited by a team of one female and one male enumerator. At the visit, the enumerators explained the objectives of the survey to the household head and spouse, and then asked for consent to participate in the project. Of the initial 1,300 sample, 1,186 households agreed to participate in the survey.

After providing consent, a preliminary household-level survey was conducted with the household head on the age and gender of all household members. We used this information to establish whether the household met our age eligibility requirement – the presence of either a household head or spouse between the ages of 18 to 55. Of the 1,1186 households who completed the household-level survey, 1,029 met the age eligibility requirement.

Enumerators conducted individual surveys for each spouse between the ages of 18 and 55. In an effort to ensure accurate responses, each individual survey was conducted by an enumerator of the same gender in private and out of earshot from the respondent's spouse.[21] Respondents were asked questions about their own socioeconomic outcomes. In particular, information was provided on number of children ever born, age at first birth, age at first marriage, level of education, labor market participation and occupation.

To explore the long-run consequences of childhood fostering, we asked respondents a series of questions about the socioeconomic outcomes for all biological siblings. Given the tradition of strong kinship ties in Benin, it is typical for siblings to maintain close relations with biological family members into adulthood, regardless of past fostering status. As a result, the survey design allows us to track long-run outcomes across both fostered and non-fostered siblings from the biological siblings into later-life.[22]

Respondents provided background information for all biological siblings.[23] This information included the age and gender of each sibling, their level of education, and whether they were

[20]The National Statistics Agency provided a sample of 1,300 households selected through a two-step sampling design based on the 2013 Census of Population and Housing. This design is similar to the ones used in the DHS.

[21]The surveys were also conducted in the respondent's preferred language (French, Fon, Goun, or Mina).

[22]In the next section, we discuss the potential empirical issues associated with response errors, and assess the quality of the survey data.

[23]Biological siblings include all children born to the same father.

fostered during childhood.[24] We also obtained information on later-life socioeconomic outcomes for biological siblings. Key variables include the number of children, current occupation, and whether they live in Benin. Finally, respondents provided information on their interpersonal relationships with each siblings. Specifically, they were asked whether they had talked to or met with each sibling in the past month.

4.2 Data Quality

Before turning to the descriptive statistics, we first assess the quality of the data and discuss several issues relevant for the empirical analysis. Given the survey design, there may be concern that response errors could introduce measurement error into the main outcome variables of interest. In particular, if respondents are poorly informed about the later-life socioeconomic outcomes of their adopted or non-adopted siblings, these variables may be misreported to enumerators. There are two main data quality issues for the sibling dataset, which we discuss in turn.

First, there is concern that socioeconomic outcomes are more accurately measured for survey respondents than for their siblings, for whom errors could arise due to imperfect recall. If so, the reporting errors in the dependent variable will be correlated with respondent status, which may introduce non-classical measurement error that will bias into the main regression estimates.[25] This issue stems from the fact survey respondents are not a representative family member, since they are drawn from the capital district. As a result, later-life socioeconomic outcomes for respondents differ systematically from their biological siblings, many of whom continue to reside in more rural areas.

To see why these differences in demographics across respondent and non-respondent siblings pose challenges for estimation, consider the simple regression of observed outcome variable

[24] Specifically, respondents were asked whether a sibling was sent out to be fostered before age 15.

[25] This issues contrasts with classical measure error, in which outcome reporting errors are uncorrelated with outcome or explanatory variables, and where mismeasurement of outcome the variable will reduce precision but will not bias the regression estimates (Wooldridge, 2002).

$\tilde{y} = y + \nu$ on childhood fostering status, x, where ν captures measurement error in the dependent variable that may be correlated with both the dependent and independent variables. It is straightforward to show that estimates will be biased according to the following equation:

$$E(\hat{\beta}) = \beta + b_{x,\nu}$$

where the term $b_{x,\nu}$ is the regression coefficient of the measurement error, ν, on x. The direction of the bias is unclear, and depends on whether respondents were more or less likely to be fostered in childhood.[26]

A second related concern is that respondents may provide more accurate information for non-fostered versus fostered siblings. These differential reporting errors across siblings might arise, for example, if respondents maintained closer ties to their non-fostered siblings into adulthood. Again, this form of non-random reporting error will introduce non-classical measurement error that may bias the main estimates.

To explore these data issues, we assess the frequency of social interaction between both non-fostered and fostered siblings in the sample (see Table 1). We find a high level of social connectedness among adult siblings, regardless of childhood fostering status. Among non-fostered siblings, two-thirds had talked to the respondent during the past month, and just over half had met with the respondent. For fostered siblings the rates are 79 percent and 45 percent, respectively. The patterns align with the strong degree interconnectedness and kinship ties in many west African societies (Ayisi, 1992; Aguwa, 2005), and suggest that respondents should be well-informed about the socioeconomic outcomes of their biological siblings.

To further assess the quality of the data, Table A.1 reports the frequency of age heaping for respondents and their siblings. Age heaping is the tendency for individuals to incorrectly

[26]The bias may be even more severe if respondents misreport *both* their siblings' fostering status and later-life socioeconomic outcomes. In this case the asymptotic bias will depend on the correlation between both sources of reporting errors and childhood fostering status (see Bound et al., 1994, for more details). That said, recall error in siblings' fostering status is less plausible, given the significance of the event and the fact that all siblings would have been in close contact in when it occurred.

report age or year of birth age at certain intervals (0 or 5). This phenomenon has been well-documented in the DHS for countries in sub-Saharan Africa (Fayehun et al., 2020; Lyons-Amos and Stones, 2017), as well as in other surveys and censuses in the developing world (Pardeshi, 2010; Samuel, 2010). We find that the rates of age heaping among respondents are similar to the rates of age heaping in the 2011 wave of DHS for Benin (34 percent).[27] Importantly, we find no significant differences in the frequency of age heaping that respondents report for themselves and the frequency that they report for their biological siblings.

Taken together, the high levels of interactions between respondents and their biological siblings and the lack of systematic differences in age heaping across the two groups suggests that the overall data quality is likely to be similar to other widely used surveys of the country.

We take several additional steps to limit concerns related to measurement error. First, we exclude respondents from the main sample, and estimate models using the subsample of respondents' biological siblings. Since respondent recall errors should not systematically vary across different biological siblings, this approach limits concerns that non-classical measurement error will bias the main estimates. Second, we report results from robustness exercises, based on subsamples of siblings within more restrictive age ranges of the respondent, where recall errors are likely to be smaller.

4.3 Descriptive Statistics

Table 1 reports the summary statistics for the main variables used in the empirical analysis. We report summary statistics separately for non-fostering households (col. 1) and fostering households (cols 2 and 3). For the latter group, we distinguish between fostered siblings (col. 2) and non-fostered siblings (col. 3).

There are wide differences in outcomes across fostered individuals and individuals from non-fostering households. Fostered individuals worked in lower quality occupations and obtained substantially lower levels of education, and had more children. Conditional on growing up in

[27] Across DHS waves since 1996, the mean rate of age heaping was 31 percent (Lyons-Amos and Stones, 2017).

a fostering household, however, the differences in outcomes between fostered and non-fostered siblings are much smaller. The stark differences in outcomes across the two comparison groups – non-fostered individuals from non-fostering versus fostering families – highlights the importance of controlling for family background when assessing the impact of fostering status on later-life outcomes and motivates the within-family research design that we discuss in the next section.

Even within fostering families, however, fostering status does not appear to be randomly assigned. Fostered siblings tended to be older and were more likely to be female (see Dohouin and Gbeholo, 2024, for more details). These differences limit our ability to compare raw outcomes across fostered and non-fostered siblings. For example, the higher fertility rates among fostered siblings may reflect the fact that they are slightly older than their non-fostered siblings. Importantly, our empirical strategy will account for these individual characteristics when assessing the later-life impacts of childhood fostering.

5 Empirical Framework

Our empirical strategy is based on within-family fixed effects regressions, that compares outcomes of fostered children to their non-fostered biological siblings. For outcome of interest y_{ih}, observed for adult i from household (biological family) h, the specification is given by:

$$y_{ih} = \alpha + c_h + \beta Fostered_{ih} + \gamma X_{ih} + e_{ih} \tag{1}$$

where $Fostered_{ih}$ is a dummy variable for whether individual was fostered by age 15. The model includes a vector of household fixed effects c_h, so that all comparisons are based on siblings from the same biological family. The variable y_{ih} denotes the later-life outcome of interest, while X_{ih} denotes a vector of individual-level control variables. These include gender, and eldest sibling dummies, as well as series of 5-year age group dummies. We also interact each of these individual-level covariates with an indicator for whether the individual belongs to a fostering household or not. These interactions allow for differences in the effects of covariates on the

outcomes of interest across fostering and non-fostering households.[28] The coefficient of interest is β, which identifies within-family differences in outcomes across fostered and non-fostered siblings.

There are two main identification challenges that limit a causal interpretation of β. First, the practice of fostering may generate spillovers onto non-fostered siblings. Second, decisions regarding which child to send out are correlated with unobservable child attributes that are relevant to future labor market outcomes.

Despite these issues, we can apply the reduced form estimates from equation (1) to evaluate whether policies aimed at restricting child fostering can improve children's later-life economic outcomes. In particular, we apply the regression results to assess whether the sufficient statistics derived in Section 3.2 hold in the data: Do later-life socioeconomic outcomes of fostered siblings weakly exceed those of their non-fostered siblings? Specifically, we construct a series of one-sided hypothesis tests for the relative differences in later-life outcomes:

$$H_0 : \beta^* < 0 \quad \text{versus} \quad H_1 : \beta^* \geq 0.$$

These tests informs as to whether policies aimed at restricting the practice can improve children's future economic outcomes. Crucially, these tests depend solely on relative the later-life outcomes of fostered and non-fostered siblings, regardless of the underlying sources of these disparities. Indeed, we can evaluate the tests statistics can be constructed even though the estimates in equation (1) may not be causal.

[28] For example, if fostering families held more conservatives views regarding women's work, the gender dummy may have differential impacts on employment outcomes across the two groups of households.

6 Results

6.1 Childhood Fostering and Later-life Employment and Fertility Patterns

We begin by studying the link between childhood fostering and later-life employment outcomes. To limit concerns related to measurement error, we focus on usual occupation, as opposed to current employment status or income; variables over which respondents may be less-well informed.[29] There are wide differences in skill requirements across occupational categories (Table A.2). We focus on two different occupational outcomes at either end of the skill distribution: whether the individual works in a salaried job, and whether the individual works in a low-skill job. For workers in salaried jobs, which includes both public and private sector employment, 98 percent ever attended school. For workers in low-skill jobs, which include day labor, small business ownership, domestic work, and farming, 61 percent ever attended school. Even within biological families, individuals working in salaried (low-skill) jobs had significantly higher (lower) levels of education (Table A.3, cols. 1-2).

Table 2 reports the estimates from equation (1) for later-life occupational outcomes. Columns 1 and 4 report the results from the baseline models that include family fixed effects but no additional covariates. Columns 2 and 5 report the results from models include additional controls for individual characteristics. Columns 3 and 6 report the results from our preferred specification, in which the impact of these covariates on employment outcomes are permitted to vary across fostering and non-fostering families.

Across the various specifications, we find no evidence that fostered children had inferior later-life labor market outcomes relative to their non-fostered siblings. The positive point estimates in columns 1-3 show that fostered children were *more* likely than their non-fostered siblings to work in a salaried job in adulthood. Meanwhile, the negative point estimates in columns

[29]Labor force participation rates in Benin are high for both working age males (73 percent) and females (70 percent), while the national unemployment rate is just 2.5 percent (World Bank, 2022).

4-6 show that fostered siblings were *less* likely to work in low-skill occupations in later-life. The broad similarity in these results, at both ends of the occupational-skill distribution, points against fostering having negatively impacted the later-life career opportunities for the vast majority of children who were sent out.

Table 2 also reports the p-values and confidence intervals from a series of one-sided hypothesis tests for occupational outcomes. Across all three specifications, we are able to reject the null hypothesis that fostered children were less likely to be employed in salaried employment (cols. 1-3). Although the estimates are less precise, we also find no evidence that fostered children were disproportionately employed in low-skill employment (cols. 4-6). Indeed, in our preferred specification, the 95% confidence intervals rule out positive effects larger than one percentage point. Together, these findings suggest that fostered children, on average, did not experience worse long-run occupational outcomes compared to their non-fostered siblings.

Next, we explore the link between childhood fostering and later-life fertility patterns. Benin is currently in the midst of its demographic transition, with higher socioeconomic status individuals choosing to have fewer children (Vogl, 2016; World Bank, 2022). Within-families, individuals with higher levels of education had significantly fewer children (Table A.3, col. 3). Thus, studying the relationship between childhood fostering and subsequent fertility behavior can shed light on the longer-run socioeconomic impacts of the practice.

Table 3 reports the estimates from equation (1) for fertility, measured as the number of children ever born. Across the three specifications, the point estimates are all negative, suggesting that individuals fostered in childhood had fewer children, on average, than their non-fostered siblings. The preferred estimates imply a relative difference in fertility of 12= 0.313/2.7 percent between fostered and non-fostered siblings.

Although the point estimates from Table 3 are not causal, we can apply them to rule out that fostering led to an increase in later-life fertility among individuals who were sent out. The results from one-sided reject the null hypothesis that $\beta > 0$. In our preferred specification (col. 3), the 95% confidence interval allows us to rule out that fostered children had higher fertility

rates than their non-fostered siblings.

Taken together, the patterns in Table 2 and 3 show that fostered siblings enjoyed relatively better later-life socioeconomic outcomes than the non-fostered siblings, as reflected by their occupational outcomes and subsequent fertility behavior. Together, these findings suggest that the sufficient statistic derived in Section 3.3 is satisfied, at least in the context of Benin. Thus far, we have uncovered no evidence that government intervention aimed at restricting the practice is likely to benefit children's later-life economic opportunities.

6.2 Mobility and Social Interaction

The displacement from the family home during childhood may have imposed long-term costs on children who were sent out that may not be easily captured by standard socioeconomic outcomes. For example, the decline in geographic proximity to one's siblings in childhood may have weakened long-term social ties to biological relatives. Given the importance of kinship ties in Benin, these effects may have imposed long-run costs on children who were sent out. To explore these questions, we study the relationship between childhood fostering, geographic mobility, and social ties to siblings in adulthood.

Table 4 reports the results for geographic mobility, where the dependant variable is an indicator for whether the individual does not currently live in Benin. Across each of the three specification, we find clear evidence that individuals who were fostered in childhood were substantially more likely to emigrate. The point estimates are all large in magnitude and statistically significant. It is unclear how negative selection into fostering may influence these results. On the one hand, parents may be more likely to send out children with greater potential to take advantage of these economic opportunities. On the other hand, parents may wish to keep children nearby who have greater earnings potential. These offsetting forces may explain why the point estimates are unaffected by the inclusion of individual covariates to the regressions (cols. 1 vs. 3).[30]

[30]We find no systematic within-family differences in education levels across migrant and non-migrant siblings

Along with the previous results for occupational outcomes (Table 2) the patterns in Table 4 are consistent with the broader out-migration patterns for the country, in which Beninese emigrants are drawn to better labor market opportunities in neighboring countries (Todegnon, 2011).[31] Nevertheless, these economic benefits may have come at the expense of weakened family ties due to greater physical distance.

In Table 5, we explore the relationship between childhood fostering and sibling ties in later-life. We focus on two measures of sibling ties: whether the sibling had talked with the respondent in the previous month and whether the sibling had met in person with the respondent in the previous month.

We find no evidence that individuals who were fostered in childhood were less likely to interact with their biological siblings in later-life. The estimates from cols. (2) and (5) are both negative, but small in magnitude and statistically insignificant.[32]

Given the greater in physical distance between fostered and non-fostered siblings (col. 1), it is striking that they retain social ties into adulthood. Indeed, we find that among the broader population, emigration is associated with significantly less sibling-to-sibling interact (cols. 3 and 6). In particular, we find that individuals who emigrated were $53 = 0.398/0.75$ percent less likely to talk with a respondent sibling and $81 = 0.35/.043$ percent less likely to meet with a respondent sibling during the previous month.[33]

The results in Table 5 suggest that individuals fostered in childhood retained *closer* ties to their biological siblings than would be predicted by geographic mobility alone. Combining the estimated effects on emigration, β^{Migrated} (col. 1), with the estimates of the link between emigration and sibling ties, γ (cols. 3 and 6), we can calculate the predicted impact of fostering on sibling ties arising solely from emigration.[34] Comparing the results from this exercise to the

(Table A.3 col. 4).

[31] Unfortunately, we are unable to directly explore these mobility patterns in more detail, since the survey did not ask about destination countries.

[32] We find very similar results for these two outcomes across models to do and do not include individual-level covariates.

[33] We find similarly large negative and statistically significant relationship between emigration and sibling ties among the subset of households that fostered a child.

[34] These calculations are analogous to an IV specification in which fostering status is used as an instrument

baseline estimates (cols. 2 versus 4 and cols 5 versus 7), we find that fostered siblings interacted substantially more with their biological siblings than expected based on their emigration patterns.

Together, the results in Tables 4 and 5 show that childhood fostering substantially increased the likelihood of emigration in adulthood, potentially providing these individuals access to better career opportunities. Despite the increase in physical distance, however, fostered children maintained strong social ties with their biological family members.

6.3 Robustness

The broad findings in Tables 2 to 5 are robust to a range of several different sample restriction. First, we exclude households in which both parents deceased during childhood. This sample restriction is motivated by the fact that fostering that resulted from orphaning may have distinct long-run impacts from the broader practice.[35] Second, we restrict the sample to siblings within a five-year age window of the respondent. This restriction is meant to address concerns related to measurement error in the outcome variables, since respondents should be better informed about siblings who were closer in age to them.

Table A.4 reports the results for later-life occupational outcomes. The two sample restrictions do not meaningfully alter the main conclusions that fostered siblings fared no worse in the labor market than their non-fostered siblings. If anything, we find larger more positive, albeit less significant, estimates for occupation outcomes when we restrict the sample to siblings within a narrow age window of the respondent (cols. 3 and 6).

Table A.5 reports the corresponding results for fertility and emigration. Again the broad patterns are similar under both sample restrictions. In particular, when we restrict to the narrower age window, we find larger estimates, although the reduced sample size decreases the precision of the estimates.

to estimate the effects of emigration on sibling ties, so that $\gamma = \beta^{\text{Ties}} / \beta^{\text{Migrated}}$.

[35] In the case of orphaning, all children below a certain age are likely to have been sent out to be fostered, whereas older siblings may simply have be required to directly enter the labor or marriage market.

Table A.6 reports the results for social interaction. For both outcomes, the results are similarly small and insignificant across the different sample restrictions.

6.4 Mechanisms and Heterogeneous Effects

What explains the non-negative relationship between childhood fostering and later-life socioeconomic outcomes? In this section we explore several potential mechanisms underlying these long-run effects.

First, we explore whether the long-run effects were driven by increased educational attainment among children who were sent out. Indeed, a number of researchers have argued that fostering may expand educational opportunities for families in rural areas where school access is limited (Isiugo-Abanihe, 1985; Zimmerman, 2003; Akresh, 2009).

Table 6 reports the relationship between childhood fostering status and two measures of education: whether the individual ever attended school and whether the individual completed primary school.[36] We find no evidence that education levels were related to childhood fostering status. The point estimates are all small and statistically insignificant. Together, these results suggest that changes in schooling levels among fostered children was not a main mechanism for the later-life socioeconomic effects. These patterns are particularly striking, given that these later-life outcomes are themselves closely related to individual education levels (Table A.3). Despite the fact that fostered children were no more likely to attend school, they enjoyed better later-life occupational outcomes and had fewer children.

A second possibility is that the average non-negative long-run effects may mask significant costs among vulnerable subpopulations. This scenario could arise in the presence of heterogeneous treatment effects, in which the benefits among subsets of fostered children counteract the harms among others. In particular, there is concern that girls are harmed by the practice, as they may be used as a source of domestic labor in the receiving household (Ainsworth, 1996;

[36] Although decisions start attending school are typically made prior to the age of fostering, parents may preemptively adjust human capital investments if they anticipate sending a child out to be fostered.

Roby, Shaw and George, 2014).

To explore this issue, Table 7 reports the estimates of fostering for models that allow the main estimates to differ by gender. We find that fostered females experience disproportionate gains in occupational outcomes in comparison to fostered males (cols. 1 and 2). Similarly, we find a larger negative relationship between fostering status and fertility among women (col. 3). Both fostered females and males were significantly more likely to emigrate, with the effect sizes slightly larger among males.

Together, the patterns in Table 7 allow us to rule out that females' longer-term socioeconomic outcomes were disadvantaged as a result of childhood. These results suggest the average non-negative socioeconomic impacts of childhood fostering do not mask particular harms among daughters who were sent, a subgroup that has been frequently cited as being particularly vulnerable to the practice.

7 Conclusion

This paper draws on a novel dataset of biological siblings in Benin to provide the first long-term assessment of consequences of childhood fostering. Across a range of later-life outcomes, we find no evidence that the practice was harmful to the socioeconomic outcomes of children who were sent out. Fostered children enjoyed slightly better job opportunities, had lower average fertility rates, and maintained strong social ties to their biological family members, despite living farther away on average. These benefits extend even to daughters who were sent out, a group for whom the practice has been viewed as particular harmful.

This study's findings suggest that policies aimed at restricting or eliminating the practice of childhood fostering are unlikely to be welfare enhancing. In the long-run, fostering does not appear to impose socioeconomic costs on the children who are sent out. At the same time, there are conceivably large benefits associated with the decision of the biological families to send out a child (Goody, 1982; Ainsworth, 1996). Together these findings may explain why, despite

dramatic economic change, the traditional practice of fostering remains widespread throughout much of sub-Saharan Africa.

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Tables

Table 1: **Summary statistics**

	Non-fostering families	Fostering families	
		Fostered siblings	Non-fostered siblings
	(1)	(2)	(3)
Salaried job	0.216	0.116	0.122
	(0.412)	(0.320)	(0.327)
Low-skill job	0.366	0.484	0.403
	(0.482)	(0.500)	(0.491)
# Children	2.771	2.854	2.693
	(2.068)	(2.080)	(2.113)
Lives abroad	0.134	0.167	0.123
	(0.341)	(0.373)	(0.329)
Talked with respondent last month	0.772	0.792	0.668
	(0.420)	(0.406)	(0.471)
Met with respondent last month	0.459	0.45	0.362
	(0.498)	(0.498)	(0.481)
Attended school	0.835	0.666	0.694
	(0.372)	(0.472)	(0.461)
Completed primary school	0.637	0.426	0.469
	(0.481)	(0.495)	(0.499)
Age	38.2	38.4	37.2
	(9.6)	(9.5)	(9.8)
First born	0.192	0.208	0.186
	(0.394)	(0.406)	(0.389)
Male	0.506	0.51	0.531
	(0.500)	(0.500)	(0.499)
Observations	2135	467	683

NOTES. This table reports the summary statistics for the main variables in the analysis. The outcomes are reported separately for biological families that did not foster any children (col. 1), and families that fostered a child (cols. 2 and 3). For each outcome we report the sample mean along with the standard deviation in parenthesis.

Table 2: **Effect of Fostered on labor**

	Employed in salaried job			Employed in low-skill job		
	(1)	(2)	(3)	(4)	(5)	(6)
Fostered	0.057	0.059	0.061	-0.038	-0.061	-0.072
	(0.035)	(0.035)	(0.035)	(0.058)	(0.050)	(0.050)
P-value for H_0: $\beta < 0$	0.052*	0.046**	0.041**			
P-value for H_0: $\beta > 0$				0.256	0.111	0.075*
95% CI for β	[-0.000, ∞)	[0.002, ∞)	[0.004, ∞)	(∞, 0.057]	(∞, 0.021]	(∞, 0.010]
Family FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls (X_i)		Yes	Yes		Yes	Yes
$\mathbb{1}$(fostering family)$\times X_i$			Yes			Yes
R2	0.465	0.498	0.504	0.476	0.550	0.555
# Obs.	3276	3276	3276	3276	3276	3276
Mean of Dep. Var.	.18	.18	.18	.39	.39	.39

NOTES. This table reports the OLS estimates for fostered from equation (1). The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. In columns 1-3, the dependent variable is an indicator for employment in a salaried job; in columns 4-6 the dependent variable is an indicator for employment in a low-skill occupation. Individual controls include gender, an indicator for eldest sibling, and 5-year age group dummies. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table 3: **Effect of Fostered on fertility**

	Number of children		
	(1)	(2)	(3)
Fostered	-0.086	-0.320	-0.313
	(0.234)	(0.192)	(0.190)
P-value for H_0: $\beta > 0$	0.356	0.048**	0.050**
95% CI for β	(∞, 0.298]	(∞, -0.005]	(∞, -0.001]
Family FE	Yes	Yes	Yes
Individual controls (X_i)		Yes	Yes
$\mathbb{1}$(fostering family)$\times X_i$			Yes
R2	0.528	0.661	0.665
# Obs.	3253	3253	3253
Mean of Dep. Var.	2.7	2.7	2.7

NOTES. This table reports the OLS estimates for fostered from equation (1). The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. The dependent variable is the number of children. Individual controls include gender, an indicator for eldest sibling, and 5-year age group dummies. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table 4: **Effects of Fostered on migration**

	Lives outside of Benin		
	(1)	(2)	(3)
Fostered	0.094	0.091	0.092
	(0.036)	(0.036)	(0.036)
P-value for H_0: $\beta < 0$	0.005***	0.006***	0.005***
95% CI for β	[0.035, ∞)	[0.032, ∞)	[0.033, ∞)
Family FE	Yes	Yes	Yes
Individual controls (X_i)		Yes	Yes
$\mathbb{1}$(fostering family)$\times X_i$			Yes
R2	0.621	0.625	0.629
# Obs.	3266	3266	3266
Mean of Dep. Var.	0.13	0.13	0.13

NOTES. This table reports the OLS estimates for fostered from equation (1). The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. The dependent variable is an indicator for whether the individual lives outside of Benin. Individual controls include gender, an indicator for eldest sibling, and 5-year age group dummies. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table 5: **Effect of Fostered on Sibling Ties**

	Lives outside Benin	Talked with respondent last month			Met with respondent last month		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fostered (β^{Migrated})	0.092						
	(0.036)						
Fostered (β^{Ties})		-0.003			-0.011		
		(0.039)			(0.043)		
Lives outside Benin (γ)			-0.398			-0.350	
			(0.045)			(0.042)	
Predicted fostered effect ($\hat{\beta}^{\text{Ties}} = \beta^{\text{Migrated}} \cdot \gamma$)				-0.037			-0.032
Full controls	Yes	Yes	Yes		Yes	Yes	
R2	0.629	0.580	0.620		0.654	0.676	
# Obs.	3266	3276	3283		3276	3283	
Mean of Dep. Var.	0.13	.75	.75		.43	.43	

NOTES. This table explores the link between child fostering and sibling interactions. For reference, column 1 reports the coefficient estimates from Table 4 (col. 3) for the relationship between fostering status and migration. Columns 2 and 5 report estimates for the relationship between fostering status and whether an individual has talked with or met with the respondent sibling in the last month, based on equation (1). Columns 3 and 6 report the relationship between migration status and whether an individual has talked with or met with the respondent sibling in the last month, based on equation (1). All models report the full set of controls described in column 3 of Table 4. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. Columns 4 and 7 report the predicted impact of child fostering on later-life sibling interactions that is attributable solely to migration. These estimates are obtained by calculating the product of the estimates of fostering on migration (β^{Migrated}) with the estimates of migration on sibling interactions (γ).

Table 6: **Effect of Fostered on education**

	Ever attended school			Completed primary school		
	(1)	(2)	(3)	(4)	(5)	(6)
Fostered	-0.027	-0.030	-0.027	0.009	0.011	0.011
	(0.041)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
P-value for H_0: $\beta < 0$	0.745	0.773	0.750	0.411	0.392	0.392
95% CI for β	[-0.040, ∞)	[-0.036, ∞)	[-0.039, ∞)	[-0.057, ∞)	[-0.055, ∞)	[-0.055, ∞)
Family FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls (X_i)		Yes	Yes		Yes	Yes
$\mathbb{1}$(fostering family)$\times X_i$			Yes			Yes
R2	0.659	0.661	0.664	0.637	0.639	0.641
# Obs.	3276	3276	3276	3276	3276	3276
Mean of Dep. Var.	.78	.78	.78	.57	.57	.57

NOTES. This table reports the OLS estimates for fostered from equation (1). The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. In columns 1-3 the dependent variable is an indicator for whether the individual ever attended school; in columns 4-6 the dependent variable is an indicator for whether the individual completed primary school. Individual controls include gender, an indicator for eldest sibling, and 5-year age group dummies. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table 7: **Effect of Fostered by Gender**

	Employed in salaried job	Employed in low-skill job	# children	Lives outside Benin
	(1)	(2)	(3)	(4)
Fostered × Male	0.060	-0.018	-0.241	0.116
	(0.052)	(0.066)	(0.258)	(0.048)
Fostered × Female	0.062	-0.124	-0.384	0.068
	(0.036)	(0.064)	(0.219)	(0.040)
P-value for H_0: $\beta^{Male} < 0$	0.124			0.008***
P-value for H_0: $\beta^{Female} < 0$	0.043**			0.045**
P-value for H_0: $\beta^{Male} > 0$		0.392	0.175	
P-value for H_0: $\beta^{Female} > 0$		0.026**	0.040**	
95% CI for β^{Male}	[-0.025, ∞)	(∞, 0.090]	(∞, 0.182]	[0.037, ∞)
95% CI for β^{Female}	[0.003, ∞)	(∞, -0.019]	(∞, -0.025]	[0.002, ∞)
Full controls	Yes	Yes	Yes	Yes
R2	0.504	0.556	0.665	0.629
# Obs.	3276	3276	3253	3266
Mean of Dep. Var.	0.18	0.39	2.7	0.13

NOTES. This table reports the OLS estimates for fostered from equation (1) in which the main estimates for fostered status are allowed to differ by gender. The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. All models report the full set of controls described in column 3 of Table 4. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

A Appendix (For Online Publication)

A.1 Additional Tables

Table A.1: **Age heaping**

Reported age a multiple of 0 or 5		Reported birth year a multiple of 0 or 5	
Respondent mean	Relative difference: Siblings − respondent	Respondent mean	Relative difference: Siblings − respondent
(1)	(2)	(3)	(4)
0.279	0.026	0.198	-0.051
	(0.050)		(0.040)

NOTES. This table compares the frequency of age heaping across survey respondents and their biological siblings. Columns (1) and (3) report the sample means for respondents. Columns (2) and (4) report estimates of within-family differences in the outcome of interest between Non-respondent siblings and respondents. Standard errors, clustered at the household level, are reported in parentheses.

Table A.2: **Occupational groups and education levels**

Class of work	Share of sample (%)	Share of class that attended school (%)
Salaried - public	8	99
Salaried - private	10	97
Student/Apprentice	6	97
Grand commerçant	4	82
Independent non-farmer	5	80
Other	3	82
Artisan	22	79
Unknown	2	78
Day worker or Factotum	7	75
Petit commerçant	27	62
Housecleaner or Nanny	3	48
Independent farmer	3	37
# Obs	3276	

NOTES: This table reports the shares of sample individuals employed in different occupations. The sample is comprised of non-respondent siblings between 20 to 60 years old. Column 1 reports the share of the sample by class of work. Column 2 reports the share that ever attended school by class of work. Blue classes comprise the sample in salaried work. Orange classes comprise the sample in low-skill work.

Table A.3: **Relationship between education level and later-life outcomes**

	Employed in salaried job	Employed in low-skill job	Number of children	Lives outside Benin	Talked with respondent last month
	(1)	(2)	(3)	(4)	(5)
Education level	0.099**	-0.045**	-0.141**	0.005	0.014*
	(0.009)	(0.010)	(0.037)	(0.006)	(0.008)
Family FE	Yes	Yes	Yes	Yes	Yes
Individual controls (X_i)	Yes	Yes	Yes	Yes	Yes
$\mathbb{1}$(fostering family)$\times X_i$	Yes	Yes	Yes	Yes	Yes
R2	0.560	0.561	0.667	0.625	0.583
# Obs.	3294	3294	3271	3283	3294
Mean of Dep. Var.	.18	.39	2.7	.13	.75

NOTES. This table reports the OLS estimates based on equation (1). The independent variable is the level of completed education (six levels). Individual controls include gender, an indicator for eldest sibling, and 5-year age group dummies. The sample is comprised of non-respondent siblings between 20 to 60 years old. Standard errors are reported in parentheses and are clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table A.4: **Robustness checks: Effect of Fostered on labor**

	Employed in salaried job			Employed in low-skill job		
	(1)	(2)	(3)	(4)	(5)	(6)
Fostered	0.061	0.060	0.149	-0.072	-0.076	-0.208
	(0.035)	(0.035)	(0.090)	(0.050)	(0.050)	(0.132)
P-value for H_0: $\beta < 0$	0.041**	0.043**	0.049**			
P-value for H_0: $\beta > 0$				0.075*	0.064*	0.058*
95% CI for β	[0.004, ∞)	[0.003, ∞)	[0.001, ∞)	(∞, 0.010]	(∞, 0.006]	(∞, 0.008]
Full controls	Yes	Yes	Yes	Yes	Yes	Yes
Baseline specification	Yes			Yes		
Restrict to non-orphaned households		Yes			Yes	
Restrict to siblings $\leq$5 year age gap from respondent			Yes			Yes
R2	0.504	0.508	0.700	0.555	0.557	0.733
# Obs.	3276	3250	1630	3276	3250	1630
Mean of Dep. Var.	.18	.18	.18	.39	.39	.39

NOTES. This table reports the results from several robustness checks. The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. In columns 1-3, the dependent variable is an indicator for employment in a salaried job; in columns 4-6 the dependent variable is an indicator for employment in a low-skill occupation. All models report the full set of controls described in column 3 of Table 4. The sample is comprised of non-respondent siblings between 20 to 60 years old. For reference, columns 1 and 4 report the estimates from the baseline specification. In columns 2 and 5, we restrict the sample to non-orphaned households. In columns 3 and 6, we restrict the sample to non-respondent siblings with a five-year age range of the respondent. Standard errors clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table A.5: **Robustness checks: Effect of Fostered on fertility and migration**

	Number of children			Lives outside Benin		
	(1)	(2)	(3)	(4)	(5)	(6)
Fostered	-0.313	-0.309	-0.365	0.092	0.091	0.115
	(0.192)	(0.191)	(0.443)	(0.036)	(0.036)	(0.088)
P-value for H_0: $\beta > 0$	0.050**	0.053*	0.205	0.005***	0.006***	0.096*
P-value for H_0: $\beta < 0$						
95% CI for β	(∞, -0.001]	(∞, 0.004]	(∞, 0.362]	[0.033, ∞)	[0.032 , ∞)	[-0.029, ∞)
Full controls	Yes	Yes	Yes	Yes	Yes	Yes
Baseline specification	Yes			Yes		
Restrict to non-orphaned households		Yes			Yes	
Restrict to siblings $\leq$5 year age gap from respondent			Yes			Yes
R2	0.665	0.667	0.813	0.629	0.629	0.772
# Obs.	3253	3240	1625	3266	3240	1625
Mean of Dep. Var.	2.7	2.7	2.7	0.13	0.13	0.13

NOTES. This table reports the results from several robustness checks. The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. In columns 1-3 the dependent variable is the number of children; in columns 4-6 the dependent variable is an indicator for whether the individual lives outside Benin. All models report the full set of controls described in column 3 of Table 4. The sample is comprised of non-respondent siblings between 20 to 60 years old. For reference, columns 1 and 4 report the estimates from the baseline specification. In columns 2 and 5, we restrict the sample to non-orphaned households. In columns 3 and 6, we restrict the sample to non-respondent siblings with a five-year age range of the respondent. Standard errors clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

Table A.6: **Effect of Fostered on sibling ties**

	Talked with respondent last month			Met with respondent last month		
	(1)	(2)	(3)	(4)	(5)	(6)
Fostered	-0.003	-0.004	0.053	-0.011		
	(0.039)	(0.040)	(0.099)	(0.043)		
Full controls	Yes	Yes	Yes	Yes	Yes	Yes
Baseline specification	Yes			Yes		
Restrict to non-orphaned households		Yes			Yes	
Restrict to siblings ≤5 year age gap from respondent			Yes			Yes
R2	0.580	0.581	0.745	0.654		
# Obs.	3276	3250	1630	3276		
Mean of Dep. Var.	0.75	0.75	0.75	0.43	0.43	0.43

NOTES. This table reports the results from several robustness checks. The table reports the coefficient estimates along with p-values and 95% confidence intervals from one-sided tests for the parameter values of β. In columns 1-3 the dependent variable is an indicator for whether the individual talked with the respondent sibling in the last month; in columns 4-6 the dependent variable is an indicator for whether the individual met with the respondent sibling in the last month. All models report the full set of controls described in column 3 of Table 4. The sample is comprised of non-respondent siblings between 20 to 60 years old. For reference, columns 1 and 4 report the estimates from the baseline specification. In columns 2 and 5, we restrict the sample to non-orphaned households. In columns 3 and 6, we restrict the sample to non-respondent siblings with a five-year age range of the respondent. Standard errors clustered at the family level are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level.

A.2 Model Derivations and Proofs

A.2.1 Model Derivations

The first order conditions for the interior solution to the parents problem are given by the following two equations:

$$-mp\beta u'(c) + mv'(e) = 0 \tag{A.1}$$

$$-ep\beta u'(c) + d + v(e) - k = 0 \tag{A.2}$$

Equation (A.1) captures the tradeoff associated with human capital investment, e. The second term of the expression, $mv'(e)$, represents the marginal benefit of an increase in human capital investment, which is shared across all m non-fostered children. The first term, $-mp\beta u'(c)$, denotes the marginal cost of this increased investment, due to the value of forgone parental consumption.

Equation (A.2) captures the tradeoff associated with child fostering, m. The second term, $v(e) - k$, captures the change in children's welfare arising from a marginal increase in m, which is simply the future wage change stemming from keeping one more child in the biological home: $w_i^H - w_i^F$. The first term, $-ep\beta u'(c) + d$, captures the change in parental utility associated with keeping an additional child at home. On the one hand, parents derive a direct utility benefit, d, from the child. On the other hand, the costs of investing in this last child lowers parental consumption, as reflected by the term $-ep\beta u'(c)$.

Totally differentiating equation (A.1) and (A.2) with respect to y, we arrive at the following two expressions:

$$\beta p^2 e u''(c) \cdot \frac{\partial m}{\partial y} + \Big(\beta p^2 m u''(c) + v''(e)\Big)\frac{\partial e}{\partial y} = \beta p u''(c)$$

$$pe \cdot \frac{\partial m}{\partial y} + pm \cdot \frac{\partial e}{\partial y} = 1$$

Combining these two expressions yields the following:

$$\frac{\partial m}{\partial y} = \frac{1}{pe} > 0,$$

which establishes that the desired number of children at home is strictly increasing in parental income.[37]

Similarly, we can totally differentiate equation (A.1) and (A.2) with respect to β, to arrive at the following two expressions:

$$\beta p^2 e u''(c) \cdot \frac{\partial m}{\partial \beta} + \Big(\beta p^2 u''(c) + v''(e)\Big)\frac{\partial e}{\partial \beta} = p u'(c)$$

$$\beta pe u''(c) \cdot \frac{\partial m}{\partial \beta} + \beta pm u''(c) \cdot \frac{\partial e}{\partial \beta} = u'(c)$$

[37] Because parents are constrained to choose integer values of m, the actual number of children retained in the household is non-decreasing in parental income.

Combining these two expressions yields the following:

$$\frac{\partial m}{\partial \beta} = \frac{u'(c)}{\beta p e u''(c)} < 0$$

which establishes that the number of children retained in the household is non-increasing with β.

Finally, combining equation (A.2) with the functions for children's later-life wages, w_i, it is straightforward to see that the difference in average later-life wages across non-fostered and fostered siblings is given by:

$$\bar{w}^H - \bar{w}^F = ep\beta u'(c) - d + \bar{\mu}^H - \bar{\mu}^F \gtrless 0$$

The gap in future wages, $\bar{w}^H - \bar{w}^F$, depends on the difference in innate endowments across non-fostered and fostered siblings, $\bar{\mu}^H - \bar{\mu}^F$. This gap also depends on the difference between the consumption cost of retaining an additional child, $ep\beta u'(c)$, relative the utility cost of sending her out, d. When the consumption cost of retaining a child is large relative to the utility cost of sending her out, parents will be willing to send a child out to be fostered even if it lowers future earnings potential. In contrast, if parents experience large relative utility costs associated with sending a child out, they may choose to retain a child even at the sacrifice of her future economic opportunities.

A.2.2 Proofs

Proof. Proposition 1

(i) Consider a pair of siblings denoted by i and j, such that $\delta_i = 1$ and $\delta_j = 0$, and without loss of generality, $\mu_i > \mu_j$. If parents chose instead to retain child i ($\delta_i' = 0$), and send out child j ($\delta_j' = 1$), per child educational investment in household, e, would remain unchanged, and the resulting wage changes would exactly offset: $\left(w_i - w_i'\right) = v(e) - k = -\left(w_j - w_j'\right)$, leaving parental utility unchanged.
(i) (a) - (c) Proof by construction. Consider the following functional forms: Let $u = v = \log$ and $D = 0$, and for any $i = 1...n$, $\mu_i = 0$ and $k = \log \frac{y}{p} + (n - 0.5)\log n - (n + 0.5)\log(n + 1)$.

Assume that there are no restrictions on the practice of fostering. It is straightforward to show that parents will optimally choose to foster exactly one child and retain $n - 1$ children in the biological home. The fostered child will earn future income k. Similarly, one can show that the future income of each non-fostered child is given by k, given parents' optimal education capital investment, e.

Assume that fostering is banned, and that parents will retain all n children in the household. In this case, each child's future income will be given by $\log \frac{y}{p(n+1)}$, which is strictly larger than k. Thus, the average income of fostered, non-fostered, and all children is larger under ban, which proves (i) (a), (b), and (c). □

Proof. Proposition 2

(i) Suppose by contradiction that there exists a pair of siblings denoted by i and j, such that

$\delta_i = 1$ and $\delta_j = 0$, and $\mu_i > \mu_j$. In this case, parents can increase the sum of children's future earnings (and their utility) by the amount $(\mu_i - \mu_j)$ if they retain child i in the biological home and send child j to be fostered. This change will live per child investment, e, unchanged and will still satisfy the household budget constraint.
(ii) The proofs for (a), (b), and (c) are implied directly by the proofs for Proposition 1(ii) (a), (b), and (c). □

Proof. Proposition 3

(i) Suppose by contradiction that there exists a pair of siblings denoted by i and j, such that $\delta_i = 1$ and $\delta_j = 0$, and $\mu_i < \mu_j$. In this case, parents can increase the sum of children's future earnings (and their utility) by the amount $(\mu_j - \mu_i)$ if they retain child i in the biological home and send child j to be fostered. This change will live per child investment, e, unchanged and will still satisfy the household budget constraint.
(ii) The proofs for (a), (b), and (c) are implied directly by the proofs for Proposition 1(ii) (a), (b), and (c). □

Proof. Proposition 4

Consider the first order condition for educational investments, e, at the interior solution:

$$-p\beta u'\big(y - mpe(m)\big) + v'\big(e(m)\big) = 0.$$

Differentiating this equation with respect the m, we have the following result:

$$e'(m) = -\frac{p^2 e(m) u''\big(y - mpe(m)\big)}{v''\big(e(m)\big) + p^2 m u''\big(y - mpe(m)\big)} < 0, \tag{A.3}$$

which implies that parental investment is decreasing with the number of children retained in the household, m.

Assume that at the interior solution, parents choose to send a strictly positive number of children to be fostered. Without loss of generality, assume that children 1 to m remain in the biological home, whereas children $m+1$ to n are sent out.

Denote $e(m)$ denote the optimal education investment when m children remain at home. If fostering were banned, parents' utility would be $u(w - npe) + nv(e) + n\mu$, and that e satisfies the same first-order-condition according to $e(n)$, where $e(m) \geq e(n)$ for $m < n$ since $e'(m) < 0$. Thus, a ban on fostering will reduce the level of investment among non-fostered children regardless of the selection process into fostering

Denote average income of non-fostered children as $\bar{w}^H(e(m)) = \bar{\mu}^H + v\big(e(m)\big)$, and average income of fostered children as $\bar{w}^F = \bar{\mu}^F + k$, where $\bar{\mu}^H$ and $\bar{\mu}^F$ denote the average endowments of non-fostered and fostered siblings, respectively. By assumption the average income of the fostered children is weakly larger than the average income of non-fostered children at the optimal level of investment: $\bar{w}^F \geq \bar{w}^H(e(m))$. Finally, $\bar{w}^{j,Ban}(e(n)) = \bar{\mu}^j + v\big(e(n)\big)$ for $j \in \{F, H\}$ as the average wages of fostered and non-fostered siblings if a ban is imposed.

Case 1: No selection into fostering: Let $\mu_i^H = \mu_i^F = \mu_i$.
(a) Since fostering status is independent of innate ability, we have that $\bar{\mu}^F = \bar{\mu}^H = \bar{\mu}$. We have that:

$$\bar{w}^F \geq \bar{w}^H(e(m)) = \bar{\mu} + v\big(e(m)\big) > \bar{\mu} + v\big(e(n)\big) = \bar{w}^{F,Ban}(e(n))$$

where the first inequality holds by assumption, and the second inequality follows immediately from equation A.3, which proves Proposition 4(a).
(b) By assumption, average incomes of non-fostered siblings are lower than those of fostered siblings: $\bar{w}^F \geq \bar{w}^H(e(m))$. So, it suffices to establish whether non-fostered children's average income would be lower under a ban. From equation A.3, it follows directly that:

$$\bar{w}^H(e(m)) = \bar{\mu} + v\big(e(m)\big) > \bar{\mu} + v\big(e(n)\big) = \bar{w}^{H,Ban}(e(n)),$$

which proves Proposition 4(b).
(c) To establish (c), it is sufficient to show that the sum of children's future wages, $\sum_i^n w_i$, is weakly smaller under a ban. The sum of children's income in the absence of a ban is given by:

$$\begin{aligned}
\sum_i^n w_i &= m \cdot \bar{w}^H(e(m)) + (n-m) \cdot \bar{w}^F \\
&= m\big(v\big(e(m)\big) + (n-m)k + n\bar{\mu} \\
&\geq n\big(v\big(e(m)\big) + n\bar{\mu} \\
&> n\big(v\big(e(n)\big) + n\bar{\mu} = \sum_i^n w_i^{Ban}
\end{aligned}$$

where the inequality in line three holds by assumption and the inequality in line four follows immediately from equation A.3. This proves Proposition 4(c).

Case 2: Negative selection into fostering: Let μ_i^H and $\mu_i^F = \mu^F$.
(a) For any fostered child, $i \in \{m+1, ..., n\}$, we have the following:

$$\begin{aligned}
w_i^F &= k + \mu_F \\
&\geq v\big(e(m)\big) + \frac{1}{m}\sum_{k=1}^{m} \mu_k^H \\
&> v\big(e(n)\big) + \mu_i^H = w_i^{F,Ban}\big(e(n)\big)
\end{aligned}$$

where the first inequality follows by assumption, and the second inequality follows from equation A.3 and the fact that children are negatively selected into fostering ($\mu_i \leq \mu_j \ \forall \ \delta_i > \delta_j$). As a result $\bar{w}^F > \bar{w}^{F,ban}\big(e(n)\big)$, which proves Proposition 4(a).
(b) By assumption $\bar{w}^F \geq \bar{w}^H(e(m))$, so the non-fostered siblings have the minimum average

incomes of the two groups. It is straightforward to show that:

$$\bar{w}^H(e(m)) = v\big(e(m)\big) + \frac{1}{m}\sum_{i=1}^{m}\mu_i^H > v\big(e(n)\big) + \frac{1}{m}\sum_{i=1}^{m}\mu_i^H = \bar{w}^{H,Ban}(e(n)),$$

where the inequality follows from equation A.3, which proves Proposition 4(c).
(c) To establish (c), it is sufficient to show that the sum of children's future wages, $\sum_i^n w_i$, is weakly smaller under a ban:

$$\begin{aligned}\sum_i^n w_i &= m \cdot v\big(e(m)\big) + \sum_i^m \mu_i^H + (n-m)\big(k+\mu^F\big)\\ &\geq nv\big(e(m)\big) + n\frac{\sum_i^m \mu_i^H}{m}\\ &> nv\big(e(n)\big) + \sum_i^n \mu_i^H = \sum_i^n w_i^{Ban},\end{aligned}$$

where the first inequality follows by assumption, and the second inequality follows from equation A.3 and the fact that $\mu_i \leq \mu_j \;\forall\; \delta_i > \delta_j$. Thus the sum of children's future wages is lower under a ban, which proves Proposition 4(c).

Case 3: Positive selection into fostering: Let μ_i^F and $\mu_i^H = \mu^H$.
(a) We can write the average income of fostered children as follows:

$$\begin{aligned}\bar{w}^F &= \frac{\sum_{i=m+1}^n \big(k+\mu_i^F\big)}{(n-m)}\\ &\geq v\big(e(m)\big) + \mu^H\\ &> v\big(e(n)\big) + \mu^H = \bar{w}^{F,Ban}\big(e(n)\big),\end{aligned}$$

where the first inequality holds by assumption and the second inequality follows from equation A.3, which proves Proposition 4(a).
(b) By assumption $\bar{w}^F \geq \bar{w}^H(e(m))$, so the non-fostered siblings have the minimum average incomes of the two groups. We have that:

$$\bar{w}^H(e(m)) = v\big(e(m)\big) + \mu^H > v\big(e(n)\big) + \mu^H = \bar{w}^{H,Ban}(e(n)),$$

which follows directly from equation A.3, proving Proposition 4(b).
(c) To establish (c), it is sufficient to show that the sum of children's future wages, $\sum_i^n w_i$, is

weakly smaller under a ban:

$$\begin{aligned}\sum_{i}^{n} w_i &= m \cdot \Big(v\big(e(m)\big) + \mu^H\Big) + \sum_{i=m+1}^{n} \Big(k + \mu_i^F\Big) \\ &\geq n\Big(v\big(e(m)\big) + \mu^H\Big) \\ &> n\Big(v\big(e(n)\big) + \mu^H\Big) = \sum_{i}^{n} w_i^{Ban},\end{aligned}$$

where the first inequality holds by assumption, and the second inequality follows from equation A.3. This proves Proposition 4(c). □