Benjamins for the Benjamins: How Equal Split Inheritance Laws Favor Younger Siblings

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Abstract

Inheritance laws around the world split the parents' bequest equally among their children. We argue that such equal split laws favor younger siblings because they inherit earlier in life. Notably, during their lifetimes parents usually treat children equally by giving them the same at the same age, not by giving them the same at the same point in time. To quantify the imbalance created by equal split inheritance laws, we propose age-adjusted inheritance shares, which equalize the age-adjusted value of inheritances. We then calculate age-adjusted shares for 1.6 million siblings in 66 countries. The age-adjusted inheritance of the oldest child would exceed that of the youngest, on average, by 21% in the US, with substantially larger gaps in countries with larger families and higher interest rates. Within countries, the gap is larger for less educated and poorer mothers. We argue for two changes to the current inheritance laws. First, in the long run, equal split inheritance laws should be replaced by age adjusted inheritance split laws in the absence of a will. Second, more urgently, legitime laws that can prevent age adjusted inheritance splits even with a will should be modified to allow for age adjusted inheritance shares.

1 Introduction

Cain and Abel are brothers. They inherit the same number of apple seeds when their parents Adam and Eve pass away. Abel is ten years younger than Cain and grows his stock of apple seeds at a rate of 7%. When Abel reaches the age Cain was at the time of their parents' death he has almost doubled his initial inheritance. If both brothers save their inheritance and grow it at a real rate of 7% then Abel's inheritance is always roughly double that of his older brother at the same age. This inequality also gets passed on to the descendants of Cain and Abel.

When Adam and Eve were still alive they treated their children equally by giving them the same when they were the same age, not by giving them the same at the same point in time. However this is not possible with an inheritance that is paid out at their deaths. To achieve a similar result they should have given two thirds of their bequest to Cain and one third to Abel. With a real rate of return of 7 percent this would roughly ensure that Cain and Abel receive the same purchasing power at the same age. We call this "age-adjusted inheritance".

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In this paper we quantify how much the age-adjusted inheritance shares of the oldest and the youngest sibling would differ, on average, for families around the world. We let $\delta = (\alpha_1 - \alpha_n)/\alpha_n$, where α_1 and α_n represent the age-adjusted inheritance shares of the oldest and youngest children, respectively. In the example above, Cain's age-adjusted inheritance share ($\alpha_1 = 2/3$) would be twice as large as Abel's age-adjusted share ($\alpha_n = 1/3$). So $\delta = 1$.

The magnitude of δ depends on the age gap between Cain and Abel. To measure this in the real world, we obtain data on sibling age gaps in 65 developing countries from the Demographic and Health Surveys (DHS), and for the United States from the National Survey for Family Growth (NSFG). Overall, our data covers more than 1.6 million siblings.

The size of δ also depends on the interest rate. For this, we use data on real interest rates from the World Bank and the European Central Bank to account for interest rate variation around the world. In our introductory example we describe the interest rate as Abel's rate of return. Except for wealthy heirs, it may be more realistic to think of it as the rate at which Cain can borrow. For instance, suppose Cain and Abel take out a mortgage, or a business loan when they are the same age. We therefore use interest rate data that is meant to capture the rate at which the private sector can borrow in each country.

We find that age-adjusted inheritance shares would differ substantially from equal shares in many developing countries. Fertility rates in these countries were high for fairly recent cohorts and, consequently, the age gaps between the oldest and youngest siblings tended to be large. Moreover, real interest rates tend to be higher in developing countries as well due to underdeveloped credit markets. Even in the United States where fertility has fallen since the Baby Boom and interest rates are lower, we find that the oldest sibling would inherit, on average, 21% more than the youngest sibling (i.e., $\delta = 0.21$). In 54 out of 66 countries in our data the gap exceeds 50% ($\delta > 0.5$), and in 29 out of 66 countries it exceeds 100% ($\delta > 1$).

One shortcoming of our data set is that we lack birth-interval data for many developed countries, particularly in Europe and Asia. To mitigate this issue, we use the countries covered by our data to estimate a statistical model that predicts a country's average δ based on its interest and fertility rates alone. As fertility rates in most developed countries have been fairly low for decades and interest rates tend to be low as well, the average δ for developed countries is typically below 25%.

Next, we turn from our cross-country analysis to heterogeneity across families within countries. We find that δ is larger for less educated and poorer families, if we do not control for family size, but this effect disappears once we control for the number of children per family. We interpret this as follows: education and wealth primarily affect δ through the channel of family size—wealthier, more educated mothers have fewer children and, consequently, a smaller age gap between their oldest and youngest.

Inheritance Laws Today In the vast majority of countries today, equal sharing of bequests among children is the legal default in the absence of a will. Countries with equal sharing inheritance display minor variations in their laws—these generally relate to the treatment of adopted and half-siblings as well as possible exceptions for children who have provided special care. A small group of countries, such as Algeria, Egypt, Morocco, and Saudi Arabia, do not use equal sharing—instead, they rely on Sharia law where sons inherit shares twice as large as daughters. A handful of countries demonstrate a mixture of these two types. In India, for instance, inheritance norms vary by religion. Hindus and Christians generally practice equal sharing, whereas Muslims follow Sharia law. In other countries, such as Nigeria and Tanzania, statutory law mandates equal sharing among siblings, but customary norms that favor male primogeniture tend to ignore those laws. Here, statutory law generally prevails in urban areas, and customs in rural areas.

Many countries with a civil law tradition also have legitime laws, entitling children to a specified minimum share of the inheritance.[1] The minimum share that children are entitled to is often 1/2 of the equal split share (e.g. Brazil, Japan, Germany), 2/3 of the equal split share (e.g. Egypt, Italy, Peru), or 3/4 of the equal split share (e.g. France, Colombia, Chile).[2] The legitime may therefore prevent the implementation of age-adjusted inheritances in cases where the youngest child's age-adjusted share falls below the lower bound imposed by the law.

To account for the previously neglected effect of sibling age differences, we argue that default inheritance laws should be changed from the current equal split to an age-adjusted one. If such a radical change is difficult to implement, we recommend, at the very least, adjusting minimum heirship shares to permit age-adjusted divisions for families seeking fairness through a will.

Literature and Historical Background The literature on inheritance norms and laws is spread across several disciplines. Anthropologists have documented the inheritance norms of early human societies, from prehistorical hunter-gatherers to the first agriculturalists, arguing that farming encouraged primogeniture, where the eldest son inherits everything—splitting farmland among siblings into ever smaller pieces would be inefficient (Shenk et al. (2010) and Smith et al. (2010)). Historians and legal scholars have described the global transition from primogeniture to partible inheritance (i.e., equal splitting). Partible inheritance has become the norm following the Industrial Revolution, often being enshrined into intestacy law (Friedman (2009), Bea and Poppe (2021)).

Curiously, some historical laws may have roughly approximated the age-adjusted division of inheritance we are proposing. According to Torah law the first born son receives twice as much as the other sons (Book of Deuteronomy), mirroring the age-adjusted split between Cain and Abel we discussed in the example above. In the seventeenth century, colonial Massachusetts also granted the eldest son a share twice as large as his other siblings (Friedman (2009)). Laws of this kind, representing an intermediate status between primogeniture and partible inheritance, gradually disappeared among the growing tide of egalitarianism.

There is a large literature on inheritance in economics. A small portion of the literature has studied parental motives in bequest allocation among siblings in cases where there is a will. Perhaps most closely related to this paper is the finding in Erixson and Ohlsson (2019) that parents tend to allocate a *larger* share of their bequest to younger children. The authors interpret this as a form of compensation for the younger siblings who are more likely to have provided services for the parents. Their finding also suggests that parents usually do not account for the effect of sibling age differences that is the focus of this paper.

The literature on inheritance is becoming more relevant as the role of inheritance in the economy grows. In the developed world alone, heirs will inherit $6 trillion in 2025 (Economist). Combining the findings from a series of studies in different countries (Sanchez-Romero, Ogawa, and Matsukura (2013), Alvaredo, Garbinti, and Piketty (2017), Ohlsson, Roine, and Waldenstrom (2019), Acciari and Morelli (2020), Arrigoni, Boyd, and McIndoe-Calder (2024), Bauluz and Meyer (2024), Gabbuti and Morelli (2025)), the Economist also documents that the ratio of inheritances divided by GDP has been growing substantially in many countries over the past fifty years.

Outline The remainder of this paper is structured as follows. We begin by introducing the age-adjusted inheritance shares in section 2. In section 3, we discuss our data sources and present summary statistics.

[1] This includes most countries in Europe and South America as well as a handful countries in Asia and Africa. Curiously, until 1989, the state of Louisiana also had a legitime, and today still has a legitime for children under 24.

[2] Legitime shares are as low as 1/4 in Switzerland and as high as 4/5 in Argentina.

In section 4, we show how the average δ differs across countries. In section 5, we investigate which mother characteristics are associated with higher δ within countries. Section 6 concludes. The appendix presents some algebra on the derivation of age-adjusted shares as well as some details on how we estimate average δ in countries without available birth-interval data.

2 Age-Adjusted Inheritance Shares

2.1 Adjusting Inheritance Shares

In this section, we introduce age-adjusted inheritance shares that correct the imbalance among siblings described in the introduction. These adjustments depend on 3 factors: (1) the number of siblings, (2) the birth intervals between the siblings, and (3) the real interest rate.

Consider a family of n siblings, indexed $i = 1, \ldots, n$. We order the siblings from oldest ($i = 1$) to youngest ($i = n$) and define the birth-time t_i of sibling i as the number of years between the births of the i-th child the 1st child. By construction, the birth-times are increasing, $t_1 \leq \ldots \leq t_n$ with $t_1 = 0$. We call the birth-time of the youngest child $t_n = T$ the *total birth interval*, and $r > 0$, the real interest rate. Finally, we let $\alpha_1, \ldots, \alpha_n$ denote the age-adjusted inheritance shares (which sum to one) and solve for them such that:

$$\alpha_1 = \alpha_2(1+r)^{t_2} = \ldots = \alpha_n(1+r)^T. \tag{1}$$

The condition above ensures that all younger siblings receive the same purchasing power as the oldest once they reach the age of the oldest at the time of the inheritance. Solving for $\alpha_1, \ldots, \alpha_n$ yields:[3]

$$\alpha_i = \frac{1}{\sum_{j=1}^{n}(1+r)^{t_i - t_j}} \tag{2}$$

The sequence of age-adjusted shares, ordered oldest to youngest, is decreasing $\alpha_1 \geq \alpha_2 \geq \ldots \geq \alpha_n$. Relative to an equal split, the age-adjusted share of the oldest sibling is always larger whereas the share of the youngest sibling is always smaller: $\alpha_1 \geq \frac{1}{n} \geq \alpha_n$.

2.2 Measuring Sibling Inequality

Next, we seek a household-level statistic capturing the degree of age-adjustment required within a given family. We focus on reallocation between the oldest and youngest siblings for two reasons. First, they are the most affected by age adjustment. Second, doing so allows us to obtain a unique measure for any household, regardless of family size. Our ultimate statistic, δ, measures how much the age-adjusted share of the oldest sibling exceeds that of the youngest in percentage terms:

$$\delta = \frac{\alpha_1 - \alpha_n}{\alpha_n} = (1+r)^T - 1 \tag{3}$$

For instance, returning to our biblical example of Cain and Abel in the introduction ($r = 0.07$, $T = 10$), we find $\delta \approx 1$ or 100%. Therefore, Cain's age-adjusted inheritance share is almost twice as large as Abel's.

[3] A derivation is given in the appendix

3 Data and Summary Statistics

3.1 Birth Interval Data

The data on sibling birth intervals in our analysis come from two sources: (1) the National Survey for Family Growth (NSFG), and (2) the Demographic and Health Surveys (DHS) program. The NSFG, conducted by the Center for Disease Control (CDC), provides birth interval data from the United States and the DHS program provides analogous data for many countries with lower incomes.

These surveys, importantly, are not random samples of their target populations. Both the NSFG and the DHS program utilize stratified, clustered, multi-stage sampling designs. As a result, not all mothers have an equal probability of being included. To correct for these design features (as well as differential non-response), both programs provide sampling weights for each mother. To avoid biased results, we employ these weights throughout our analysis.

The NSFG encodes data at the pregnancy-level, whereas the DHS program encodes data at the birth-level. To merge the data, we omit pregnancies from the NSFG that do not result in live births and expand those that result in multiple births to separate observations (one for each child). With these adjustments, the NSFG provides us with 50,961 total births from 23,671 mothers across 6 survey waves (the first beginning in 2002 and the final ending in 2019). The DHS program accounts for a substantially larger share of our data, providing us with 10,263,139 births from 3,390,447 mothers across 266 surveys in 80 countries. The earliest of these surveys comes from El Salvador in 1985 and the most recent come from India, Mauritania, and Madagascar, all in 2021. The DHS program has surveyed the majority of its countries (59 out of 79) more than once.

We omit mothers who have only a single child from our calculation of δ, since we need at least two siblings for non-trivial age-adjustment. Because our analysis rests on sampling mothers who are done having children, we also omit observations from mothers under the age of 45. Although there are instances in our data of mothers having children over the age of 45, these cases are exceedingly rare, consistent with the existing medical literature on advanced maternal age.[4]

In many developing nations, higher mortality rates among children also pose a threat to our analysis. Children who have died before their parents are unable to inherit any wealth and should not be included in the calculation of δ. For this reason, we omit children who have died prior to their mothers being surveyed in the DHS data. We do not do the same for the NSFG data because we lack analogous information. Since childhood mortality rates are fairly low in the United States, we anticipate that this omission will have a minimal impact on our results.

Finally, we drop observations from 14 countries whose interest rate data is unreliable or nonexistent, leaving us with mothers in 65 developing countries and the United States.[5]

After these adjustments, we retain approximately 375,000 mothers, 11% of our original sample. This set of mothers provides us with more than 1.6 million siblings to conduct our analysis.

[4]The exact value of this cutoff ultimately represents a trade-off between accuracy and statistical power. Too low of a cutoff and we keep mothers who potentially have more children after being surveyed, biasing our estimate $\overline{\delta}$ downward. Too high of a cutoff, on the other hand, and we restrict our sample size unnecessarily.

[5]We drop data from Angola, Cameroon, Central African Republic, Chad, Congo, Ecuador, El Salvador, Gabon, Ghana, Kazakhstan, Morocco, Nepal, Tunisia, and Turkey.

3.2 Fertility Rate Data

Though the NSFG and DHS programs provide us with birth interval data to obtain distributions of δ in 66 countries, we wish to extend our analysis to other countries. To do this, we use the countries covered by our data to estimate a regression that predicts a country's average δ based on its interest and fertility rates alone.[6] The fertility rate data come from the World Bank's Gender Data Portal at the country-year level. These statistics measure the average number of births per mother, by country, from 1960 to 2021. Across virtually all countries, we observe a significant decrease in the total fertility rate over this time period. Demographers attribute this trend to a variety of causes, including improved educational and employment opportunities for women, wider access to contraception, and long-term cultural shifts (Aitken 2022).

3.3 Interest Rate Data

We obtain real interest rate data for most countries in our data set from the World Bank. The World Bank's data is based on lending interest rate data from the IMF, which is then deflated using a GDP deflator from the World Bank's own data. There are a handful of countries for which these real interest rates appear either implausibly high (e.g. Brazil) or implausibly low (e.g. Zimbabwe). For these countries we calculate the real interest rates ourselves based on the World Bank's own nominal lending interest rate series and GDP deflator. As most European countries are not covered in the World Bank data on real interest rates we obtained data from the ECB for these countries. For each country, we take average real interest rates in all available years from 2000 to 2022.

3.4 Summary Statistics

The summary statistics, arranged by country, are given in Table 1. For each country, we report the number of mothers over the age of 45 surveyed and their total number of children. We calculate the average number of children ("# children") to be the mean number of children per mother and "% Only Child" as the percentage of mothers in the data with only one child. "Birth Interval" measures the average interval (in years) between consecutive births from the same mother. Mothers with an only child are excluded from this calculation. "T" measures the average time (in years) between the birth of the oldest child and the youngest child from each mother. Mothers with a single child are also excluded from this statistic.

[6] The exact specification we employ to impute $\bar{\delta}$ values is described in detail in the appendix.

Table 1: **Summary Statistics**

Country	Mothers	Children	# Children	% Only Child	Birth Interval	T	r (%)
Afghanistan	3,032	20,279	6.5	1.5	2.7	14.7	11.2
Albania	2,726	7,327	2.6	8.9	3.8	6.1	8.5
Armenia	3,177	8,245	2.5	9.9	3.3	5.0	7.9
Azerbaijan	915	2,716	2.9	8.5	2.7	5.0	7.9
Benin	4,613	24,582	5.3	4.1	3.4	14.7	4.0
Bolivia	5,142	24,524	4.7	7.4	3.4	12.5	8.3
Brazil	1,518	6,784	4.4	8.2	3.0	9.9	5.7
Burkina Faso	3,192	17,853	5.6	2.9	3.5	16.1	3.8
Burundi	2,099	11,729	5.6	3.7	3.3	15.4	7.3
Colombia	16,078	56,059	3.3	13.8	3.8	8.5	7.7
Comoros	483	2,703	5.7	6.0	2.9	13.8	8.0
Congo Democratic Republic	1,929	10,839	5.6	4.5	3.4	15.9	5.9
Cote d'Ivoire	1,302	7,148	5.4	7.4	3.5	15.4	3.0
Dominican Republic	7,186	30,108	3.9	8.8	3.1	8.9	9.7
Egypt	13,434	61,339	4.5	4.0	3.2	11.3	3.7
Eswatini	358	1,837	5.1	7.7	3.3	13.7	4.8
Ethiopia	4,193	22,211	5.6	4.6	3.5	16.3	8.7
Gambia	1,262	7,362	5.6	3.3	3.5	16.1	3.8
Guatemala	3,032	15,427	4.9	6.6	3.1	12.3	9.6
Guinea	2,949	14,449	4.9	5.7	3.8	14.8	11.6
Guyana	531	1,973	3.5	9.3	3.8	9.3	10.4
Haiti	4,475	21,980	4.7	8.2	3.3	12.2	6.5
Honduras	3,297	17,038	4.9	4.5	3.2	12.5	2.0
India	176,403	578,377	3.2	10.3	3.1	6.8	4.7
Indonesia	29,293	114,515	3.8	9.7	4.1	10.7	5.2
Jordan	6,638	40,671	5.8	3.8	2.7	12.8	5.9
Kenya	4,802	26,709	5.5	4.0	3.3	14.5	8.5
Kyrgyz Republic	1,183	4,446	3.7	9.1	3.6	9.6	3.8
Lesotho	1,661	6,964	4.1	7.8	4.0	12.3	6.0
Liberia	2,479	12,855	4.9	5.6	3.8	15.0	10.0
Madagascar	4,093	20,664	5.1	7.6	3.3	13.7	2.6
Malawi	5,021	26,765	5.3	4.6	3.6	15.4	1.5
Mali	4,201	22,571	5.4	5.0	3.5	15.2	1.9
Mauritania	1,073	6,028	5.7	4.7	3.1	14.9	2.9
Mexico	610	3,604	6.0	5.7	2.7	13.8	1.7
Moldova	1,095	2,524	2.4	16.1	4.2	5.8	6.9
Mozambique	2,434	11,894	4.8	7.6	3.6	13.7	1.9
Myanmar	1,360	4,950	3.4	12.8	4.1	9.8	9.3
Namibia	2,154	9,881	4.6	7.6	3.6	12.8	4.3
Nicaragua	1,897	10,485	5.3	4.9	3.0	12.8	6.1
Niger	2,192	12,763	5.7	4.7	3.5	16.3	2.8
Nigeria	11,146	60,236	5.4	3.9	3.4	14.9	6.5
Pakistan	4,915	27,356	5.4	4.3	2.8	12.3	2.8
Papua New Guinea	1,128	5,094	4.6	6.5	3.6	13.0	5.9
Paraguay	436	2,422	5.3	8.7	3.0	12.7	3.3
Peru	5,929	29,358	4.7	6.4	3.3	11.9	5.0
Philippines	9,057	39,896	4.3	8.2	3.2	10.5	4.2
Rwanda	5,119	26,235	5.1	4.2	3.5	14.4	10.9
Sao Tome and Principe	208	1,154	5.4	3.8	3.6	15.7	1.4
Senegal	3,018	17,034	5.6	5.7	3.4	15.6	3.3
Sierra Leone	3,108	14,280	4.6	5.0	3.9	14.0	10.1
South Africa	1,751	6,090	3.4	12.7	4.5	10.5	4.2
Sri Lanka	1,134	6,466	5.7	4.9	2.9	13.3	3.9
Tajikistan	1,897	7,437	4.0	5.9	3.3	9.9	1.7
Tanzania	4,024	23,113	5.6	5.3	3.5	15.8	8.2
Thailand	759	3,420	4.6	5.7	3.0	11.0	2.5
Timor Leste	2,064	10,928	5.3	5.0	3.2	13.5	11.8
Togo	1,661	9,052	5.3	4.0	3.6	15.5	3.8
Trinidad and Tobago	266	1,293	4.9	6.4	2.8	10.9	10.6
Uganda	3,257	20,050	6.2	4.2	3.1	16.2	3.9
Ukraine	1,025	1,915	1.8	36.7	4.5	3.6	7.1
United States	1,121	2,694	2.3	20.7	4.1	5.5	2.6
Uzbekistan	309	1,345	4.6	7.5	2.9	10.5	5.2
Yemen	2,330	15,203	6.5	2.8	2.7	15.0	8.1
Zambia	3,699	21,880	5.9	4.6	3.4	16.5	7.8
Zimbabwe	2,833	14,548	5.1	4.9	3.6	14.5	5.6

This table shows the number of mothers over the age of 45 surveyed and their total number of children for each country. We calculate the average number of children ("# children") as the average number of children per mother and "% Only Child" as the percentage of mothers with a single child. "Birth Interval" measures the average interval (in years) between consecutive births from the same mother. Mothers with an only child are excluded from this calculation. "T" measures the average time (in years) between the birth of the oldest child and the youngest child from each mother. Mothers with a single child are also excluded from this statistic. All averages are calculated using the sampling weights provided by the NSFG and DHS program.

4 Average δ Around the World

We calculate δ for each family in our data and then obtain the average for each country. We also compute the standard deviation, the 25th percentile, median, and 75th percentile. We report these results in Table 2. Out of 66 countries, 54 have an average δ greater than 0.5, and for 29 countries the average is even above 1. In other words, for more than a third of the countries in our data set, the oldest sibling needs to receive at least *double* the inheritance share of the youngest, on average, to be compensated for receiving his or her endowment later in life.[7]

In countries where we lack birth-interval data, we use a flexible regression model to estimate the country's average δ based on fertility and interest rate data alone. To do this we use the countries in our data set and regress the average δ on a flexible function of the fertility rate and the interest rate. This yields a surprisingly good fit with an R^2 above 0.9. We then use the estimated coefficients to impute the average δ for countries that are not covered by our data.

The results from Table 2 for countries in our data, along with these out-of-sample imputations, are visualized geographically in Figure 1. We find that the countries with the largest $\overline{\delta}$ values are in sub-Saharan Africa, South America, and the Middle East. These appear primarily in developing countries that have a combination of larger family sizes and higher interest rates. The United States, on the other hand, has an average δ value of 0.21.

[7] Recall that this is prohibited by legitime laws in some countries.

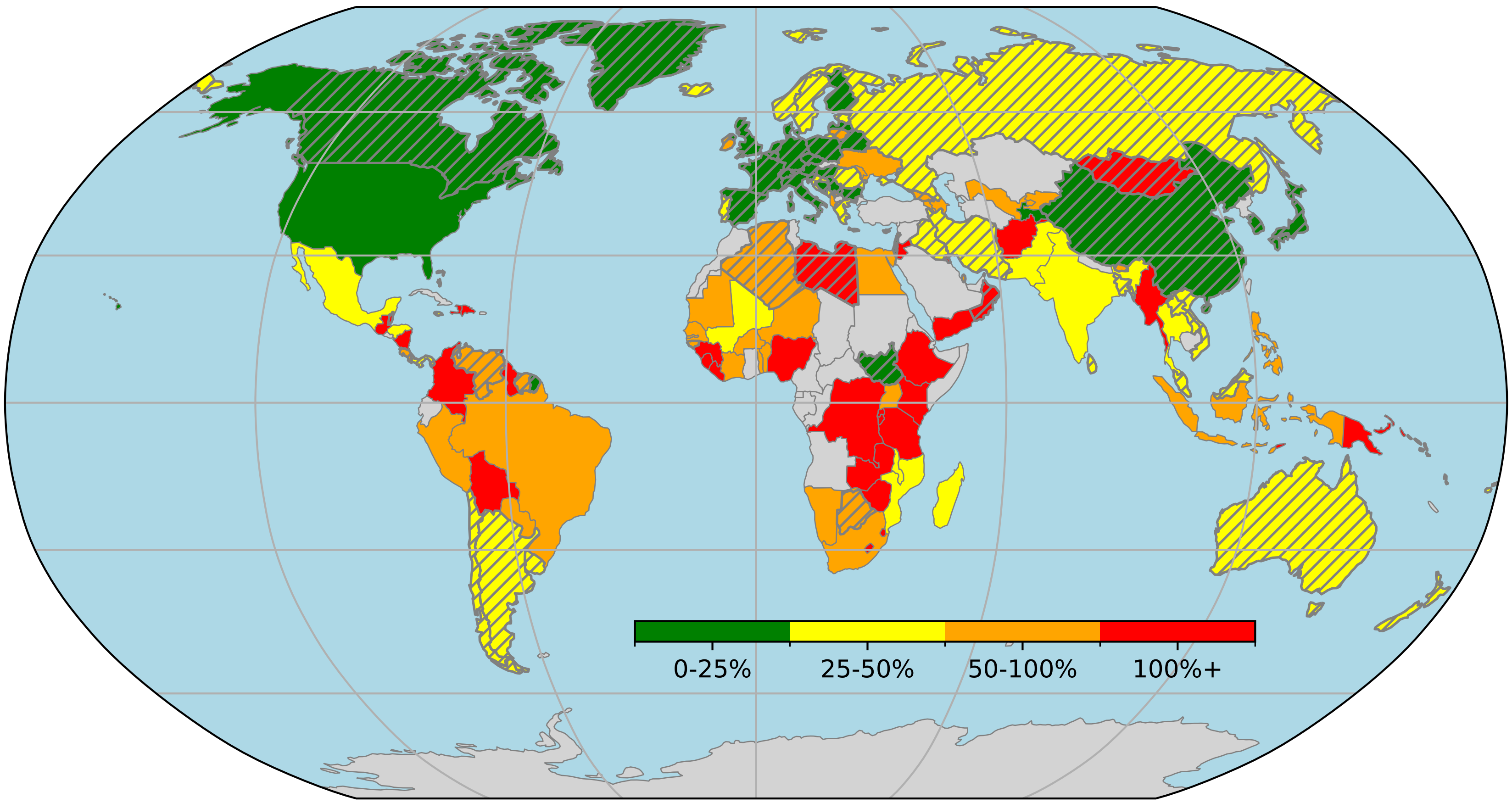
Table 2: δ **by Country**

Table 3: δ Statistics, by Country (Sorted Alphabetically)

Country	Mean	SD	25th Percentile	Median	75th Percentile
Afghanistan	4.88	3.71	2.11	4.12	6.63
Albania	0.81	0.65	0.35	0.61	1.07
Armenia	0.60	0.59	0.20	0.41	0.81
Azerbaijan	0.59	0.50	0.23	0.44	0.79
Benin	0.88	0.44	0.56	0.85	1.18
Bolivia	2.38	1.77	0.94	2.01	3.40
Brazil	0.92	0.69	0.39	0.75	1.29
Burkina Faso	0.90	0.39	0.62	0.89	1.18
Burundi	2.34	1.31	1.35	2.22	3.21
Colombia	1.29	1.15	0.47	0.93	1.77
Comoros	2.53	1.78	1.18	2.25	3.52
Congo Democratic Republic	1.77	1.02	0.99	1.64	2.43
Cote d'Ivoire	0.67	0.30	0.46	0.67	0.87
Dominican Republic	1.89	1.94	0.56	1.23	2.51
Egypt	0.57	0.35	0.30	0.52	0.79
Eswatini	1.08	0.60	0.65	1.01	1.43
Ethiopia	3.65	2.22	1.90	3.34	5.01
Gambia	0.93	0.44	0.60	0.93	1.26
Guatemala	2.99	2.46	1.03	2.31	4.38
Guinea	6.11	4.92	2.41	4.86	8.34
Guyana	2.44	2.48	0.57	1.61	3.53
Haiti	1.48	0.97	0.72	1.33	2.10
Honduras	0.31	0.17	0.18	0.29	0.43
India	0.44	0.35	0.19	0.34	0.59
Indonesia	0.92	0.62	0.43	0.79	1.27
Jordan	1.28	0.78	0.67	1.16	1.75
Kenya	2.95	2.00	1.35	2.61	4.18
Kyrgyz Republic	0.52	0.31	0.28	0.48	0.70
Lesotho	1.31	0.84	0.60	1.19	1.86
Liberia	4.50	3.32	1.88	3.78	6.46
Madagascar	0.48	0.26	0.27	0.47	0.67
Malawi	0.28	0.12	0.19	0.29	0.37
Mali	0.36	0.16	0.25	0.37	0.46
Mauritania	0.59	0.31	0.34	0.58	0.82
Mexico	0.28	0.12	0.18	0.27	0.38
Moldova	0.66	0.50	0.29	0.51	0.89
Mozambique	0.33	0.16	0.20	0.32	0.44
Myanmar	2.14	1.84	0.71	1.59	3.01
Namibia	0.87	0.53	0.44	0.82	1.23
Nicaragua	1.40	0.97	0.62	1.20	1.96
Niger	0.63	0.28	0.44	0.63	0.84
Nigeria	1.88	1.17	0.96	1.69	2.59
Pakistan	0.44	0.23	0.27	0.42	0.60
Papua New Guinea	1.34	0.78	0.72	1.26	1.82
Paraguay	0.61	0.37	0.28	0.58	0.91
Peru	0.98	0.67	0.44	0.85	1.43
Philippines	0.67	0.47	0.29	0.56	0.98
Rwanda	4.57	3.19	2.17	3.92	6.32
Sao Tome and Principe	0.26	0.11	0.18	0.27	0.35
Senegal	0.74	0.34	0.51	0.75	0.98
Sierra Leone	4.02	3.18	1.65	3.26	5.53
South Africa	0.69	0.45	0.31	0.62	1.01
Sri Lanka	0.77	0.44	0.42	0.72	1.05
Tajikistan	0.19	0.10	0.12	0.18	0.26
Tanzania	3.19	1.99	1.66	2.97	4.40
Thailand	0.35	0.21	0.18	0.32	0.48
Timor Leste	4.94	3.79	2.10	3.99	6.86
Togo	0.87	0.42	0.56	0.87	1.15
Trinidad and Tobago	2.91	2.62	0.86	2.19	3.97
Uganda	0.96	0.44	0.64	0.96	1.27
Ukraine	0.54	0.53	0.21	0.39	0.65
United States	0.21	0.17	0.08	0.17	0.28
Uzbekistan	0.84	0.51	0.46	0.75	1.10
Yemen	2.71	1.70	1.47	2.48	3.66
Zambia	3.07	1.76	1.70	2.88	4.27
Zimbabwe	1.43	0.81	0.81	1.33	1.98

In this table, we report the following statistics of δ, by country: mean, standard deviation, 25th percentile, median, and 75th percentile. All statistics are calculated from mothers surveyed over the age of 45 with at least two children, using the sampling weights provided by the NSFG and DHS program.

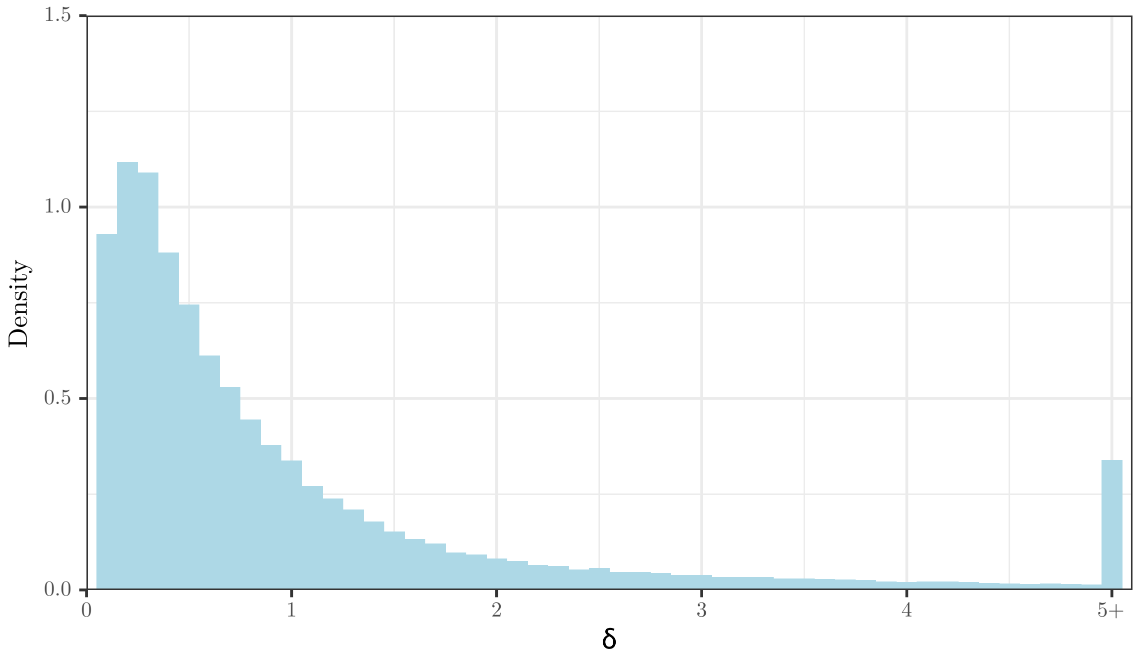
Figure 1: **Average δ, By Country**



In this map, we depict $\overline{\delta}$, by country. $\overline{\delta}$ values between 0 and 0.25 are depicted in green, between 0.25 and 0.5 in yellow, between 0.5 and 1 in orange, and above 1 in red. In solid countries, $\overline{\delta}$ is directly computed using birth-interval and interest rate data, according to survey weights provided by the NSFG and DHS program. In cross-hatched countries, $\overline{\delta}$ is imputed by regression.

Distribution of δ Figure 2 shows the distribution of δ across all 376,560 families in our data set. The distribution is right-skewed with a median of about 0.6 and a mean of about 1.1. While most δ values are below 1, there is a long tail of high values and a substantial fraction of 3.3% above 5. Table 2 shows that there is also a lot of variability of δ within countries. In the next section we try to better understand which mother characteristics are associated with high δ values within countries.

Figure 2: **Distribution of δ**



In this histogram, we depict the global distribution of δ for families in our data. We use bins of width 0.1 along the interval $[0, 5]$. Families with $\delta > 5$ are depicted in a separate "5+" bin.

5 δ By Mother Characteristics

Next, we investigate the characteristics of mothers that are associated with larger total birth intervals, and consequently, higher δ values. A mother's total birth interval can be increased in two manners: (1) by having more children, or (2) by spacing children further apart. The regressions of δ on mother characteristics from the DHS program, shown in Table 4, show the impact of education, wealth, and family size on δ.[8] The first regression, which omits family size, shows that higher levels of educational attainment and wealth are negatively correlated with δ. This means that, on average, children from wealthier, more educated mothers require less age-adjustment. In the second regression, we control for family size and find that the impact of education and wealth disappears. We interpret this as follows: education and wealth primarily affect δ through the channel of family size—wealthier, more educated mothers have fewer children and, consequently, a smaller total birth interval between their oldest and youngest.

[8]We omit NSFG data from the United States to maintain consistency in the definitions of these variables

Table 4: δ **and Mother Characteristics**

	Dependent variable:	
	δ	
	(1)	(2)
Education		
No Education	(omitted)	(omitted)
Incomplete Primary	-0.010	0.035^{**}
	(0.018)	(0.014)
Complete Primary	-0.129^{***}	0.014
	(0.026)	(0.019)
Incomplete Secondary	-0.129^{***}	0.044^{**}
	(0.025)	(0.019)
Complete Secondary	-0.363^{***}	-0.035
	(0.060)	(0.034)
Higher Education	-0.349^{***}	0.004
	(0.077)	(0.026)
Wealth		
Poorest	(omitted)	(omitted)
Poorer	-0.108^{***}	-0.017
	(0.013)	(0.013)
Middle	-0.184^{***}	-0.011
	(0.019)	(0.021)
Richer	-0.253^{***}	-0.025
	(0.025)	(0.024)
Richest	-0.342^{***}	-0.022
	(0.038)	(0.027)
Literacy		
Illiterate	(omitted)	(omitted)
Semiliterate	-0.021^{*}	0.015
	(0.013)	(0.011)
Literate	-0.045^{**}	-0.005
	(0.021)	(0.012)
Number of Children		
2 Children	(omitted)	(omitted)
3 Children		0.189^{***}
		(0.028)
4 Children		0.386^{***}
		(0.055)
5 Children		0.595^{***}
		(0.082)
6 Children		0.884^{***}
		(0.125)
7 Children		1.251^{***}
		(0.172)
8 Children		1.638^{***}
		(0.205)
9+ Children		2.405^{***}
		(0.260)
Country-Year FE	Yes	Yes
Observations	274,770	274,770
Note:	*p<0.1; **p<0.05; ***p<0.01	

6 Conclusion

In this paper, we draw attention to an inherent flaw in equal split inheritance–the legal default used in most countries today. The ability of younger siblings to earn interest on their inheritances (or the necessity for older siblings to borrow) allows them to accumulate greater lifetime wealth. The inequalities created in one generation may then be passed down to future generations. We consider this issue to be, above all else, an oversight.

To amend this situation, we propose "age-adjusted" inheritance shares. To observe how our proposed system plays out in the real world, we compute age-adjusted shares for over 1.6 million siblings from 375 thousand families, across 66 countries. Our results demonstrate that across virtually all countries, the average oldest sibling needs to be allocated significantly more than the youngest sibling to attain equality. To end the preferential treatment of younger siblings, we recommend that legislatures modernize their inheritance laws to implement age-adjusted shares as the legal default.

A Appendix

A.1 Derivation of Age-Adjusted Shares

To derive the formula for age-adjusted shares, we begin with our two conditions:

$$\begin{aligned} \alpha_1 = \alpha_2(1+r)^{t_2} = \ldots &= \alpha_n(1+r)^T \\ \alpha_1 + \alpha_2 + \ldots + \alpha_n &= 1 \end{aligned}$$

We express α_i in terms of α_1:

$$\alpha_i = \alpha_1(1+r)^{-t_i}$$

Next, we re-write the second condition in terms of α_1:

$$\alpha_1 + \alpha_1(1+r)^{-t_2} + \ldots + \alpha_1(1+r)^{-T} = \alpha_1 \sum_{j=1}^{n}(1+r)^{-t_j} = 1$$

And use this expression to determine α_1:

$$\alpha_1 = \frac{1}{\sum_{j=1}^{n}(1+r)^{-t_j}}$$

Finally, we substitute the value of α_1 to obtain an expression for α_i:

$$\alpha_i = \frac{(1+r)^{-t_i}}{\sum_{j=1}^{n}(1+r)^{-t_j}} = \frac{1}{\sum_{j=1}^{n}(1+r)^{t_i - t_j}}$$

A.2 Derivation of δ

To derive the formula for δ, we start with our definition:

$$\delta = \frac{\alpha_1 - \alpha_n}{\alpha_n}$$

And apply the equality condition:

$$\delta = \frac{\alpha_1 - \alpha_1(1+r)^{-T}}{\alpha_1(1+r)^{-T}}$$

Next, we divide the numerator and denominator by α_1:

$$\delta = \frac{1 - (1+r)^{-T}}{(1+r)^{-T}}$$

Separating the fraction, we obtain:

$$\delta = \frac{1}{(1+r)^{-T}} - \frac{(1+r)^{-T}}{(1+r)^{-T}} = (1+r)^T - 1$$

A.3 Out-of-Sample Country Imputation Methodology

To impute estimated $\bar{\delta}$ values for out-of-sample countries, we employ a logarithmic third-order polynomial regression model. We use data from 221 surveys (indexed at the country-year level) and regress the logarithm of $\bar{\delta}$ on $(r \cdot TFR)$, according to the following specification:

$$log(\bar{\delta}_{i,t}) = \beta_0 + \beta_1(r_i \cdot TFR_{i,t}) + \beta_2(r_i \cdot TFR_{i,t})^2 + \beta_3(r_i \cdot TFR_{i,t})^3 + \epsilon_{i,t}$$

Using the coefficient estimates for $\beta_0, \beta_1, \beta_2, \beta_3$, we predict $\bar{\delta}$ for countries with unobserved birth intervals (but with observed r and TFR) in the year 2021, obtaining an adjusted R-squared of 0.916.[9]

[9] Regression table available upon request

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