How much would Huey Long's Share Our Wealth Plan have lowered inequality?

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Abstract

Huey Long proposed a radical plan for wealth and income distribution, called the "Share Our Wealth" Plan. This was intended to end the Great Depression by imposing 100% taxes on income and wealth above a cap and to use that revenue to provide for a guaranteed minimum income and wealth, among other policies. I estimate the impact of these policies had they been implemented in a counterfactual United States of 1934. The largest impact on inequality comes from the cap on wealth, which makes the wealth of the very rich both lower and perfectly equal. However, wealth and income ceilings do nothing to reduce poverty or to improve the condition of the non-rich. Minimum income and wealth floors reduce inequality much less, but are much more effective at reducing poverty. However, the minimum income and wealth policies would require significant revenues to implement, which could not be funded by maximum income or wealth caps, which would raise little revenue.

Keywords: Inequality, Redistribution, Guaranteed Income, Huey Long

JEL Codes: D31, D63, H23

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1 Introduction

Huey Long was the populist Louisiana Governor and Senator in the 1930s. He was passionately opposed to the high inequality at the time, and thought that a radical plan to redistribute wealth from rich to poor could end the Great Depression. To this end, Long gave a national televised address where he laid out his plan to "Share Our Wealth" on February 23rd, 1934. This plan involved the imposition of steep wealth, income, and inheritance taxes on the richest Americans, including a ceiling on maximum income and wealth levels. This taxation would then allow for income and wealth to be redistributed to the poorest Americans, guaranteeing a minimum level of income and wealth, alongside old age pensions, a reduced work week, expanded veterans benefits, and free education and vocational training (Long, 1934). Huey Long was assassinated in 1935 and was never able to implement his program. However, it is instructive to think about what the impacts on inequality would have been for such a radical program of redistribution in the 1930s. I will focus primarily on the proposals for a minimum income and wealth floor and a maximum income and wealth ceiling.

A baseline is needed to compare to the counterfactual. The pioneering work of Kuznets and Jenks (1953) in estimating the distribution of American income covers this period of the 1930s. Many authors have updated his work, particularly Piketty and Saez, and many others have worked on inequality both wealth and inequality inequality in the interwar period. [1] Tax records for the richest Americans who paid income taxes at the time are used to construct income distribution data, using the assumption of a Pareto distribution. The year the Share Our Wealth speech was made, 1934, is used for the estimates using the Pareto distribution. Estimates of the actual distribution of income are also used, though these are only available

[1] See Williamson and Lindert (1980); Smiley (1998, 2000); Piketty and Saez (2003); Kopczuk and Saez (2004); Piketty and Saez (2006); Alvaredo et al. (2013); Piketty and Saez (2014); Kopczuk (2015); Saez and Zucman (2016); Geloso and Magness (2020) *inter alia*.

in 1929. I also use the Exponential distribution, which is a useful approximation to model poor households. The Gini coefficient is used as a quantitative measure of inequality, which is constructed for both the baseline as well as to compare to a counterfactual of the Share Our Wealth (SOW) policies being implemented.

I find that maximum wealth and income ceilings are most important to reduce inequality, because they both makes the richest households less rich, and also because the richest households would have roughly the same wealth or income once the cap is imposed. Minimum income or wealth floors do less to reduce inequality, but are more effective at reducing poverty, which maximum wealth or income caps do not address directly. Minimum income and minimum wealth guarantees are costly and must be funded on an on-going basis, while maximum income or wealth ceilings are unlikely to raise much revenue outside of the first year they are implemented. These findings are not just of historical interest, as a similar analysis could be applied to similar issues of guaranteed income or wealth, or maximum income or wealth limits, in the modern day (Widerquist, 2001).

2 Share Our Wealth

Huey Long made a nationally televised address on February 23, 1934, entitled "Every Man a King." In this speech, he laid out a program for radical wealth and income redistribution, as well as an extensive welfare state. Supporters of this program could form themselves into "Share Our Wealth Societies", which Long planned to use a mass organization to support an eventual run for the Presidency. This program included the following policies (Long, 1934):

1. Providing every American family with a 'homestead'' valued at no less than one-third of the average wealth[2]

2. Providing every American family with a guaranteed income of one-third of the average

[2] Long estimated the average to be $15,000 so the floor would be $5,000, which was an overestimate as we will see.

family income [3]

3. A maximum wealth level of $50 million
4. A maximum income level of $1 million
5. A maximum inheritance of $5 million
6. Public pensions for the elderly of $30 per month for those earning less than $1000 per annum or with less than $10,000 in wealth
7. Free college tuition and vocational training
8. Expanded veterans benefits, including health care coverage
9. Guaranteed vacations for every worker
10. Limiting hours of work
11. Limitations on agricultural production to bring supply and demand into balance
12. A major program of public works

This list includes many proposals which are not strictly redistributive, and so the impact on inequality is not of primary importance when considering these policies. Estimating the impact on inequality of free education depends on whether we consider the socio-economic position of the families of the students or the students' income, and at which point in their lives we measure their position in the income or wealth distribution. The implications for inequality will depend strongly on which method is used. There is no "correct" method, and each has strengths and drawbacks. In any case, the data to answer that kind of question is just not available for the historical period to analyze most of these proposals, and so this paper will focus on proposals 1-4.

3 Lorenz Curve and Gini Coefficient

There are many ways to quantify inequality, but the Lorenz Curve is a standard way to do so (Gastwirth, 1971). Households are ranked based on their position on the income or wealth

[3] Long figured this average to be $6,000, so the floor would be $2,000.

distribution from lowest to highest. For this section, I will refer to income exclusively, though the same analysis applies to the wealth distribution. The horizontal axis is the cumulative share of the population from zero to one, which corresponds to percentiles. The vertical axis is the cumulative share of income, again from zero to one. In a situation of perfect equality, the ranking of households is arbitrary, and each percentile of the population will have one percent of total income. This situation of perfect equality corresponds to the 45° line. Any change in the income distribution from perfect equality will result in a line which is below the 45° line, as now some households will have more than average and some households will have less than average income.

The more unequal the distribution is, the lower the Lorenz Curve will be, with the most extreme situation being one where only one household has all income and all other households receive no income, where the Lorenz Curve would then be two perpendicular line segments. Thus, the difference in the areas under the line of equality and the Lorenz Curve will correspond to the degree of inequality in a society. The Gini coefficient is a way to quantify this inequality, and it's defined as the ratio of the difference in the areas under the line of equality and the Lorenz Curve, and the total area under the line of equality.

This can be seen in Figure 1, where the Gini coefficient is defined as

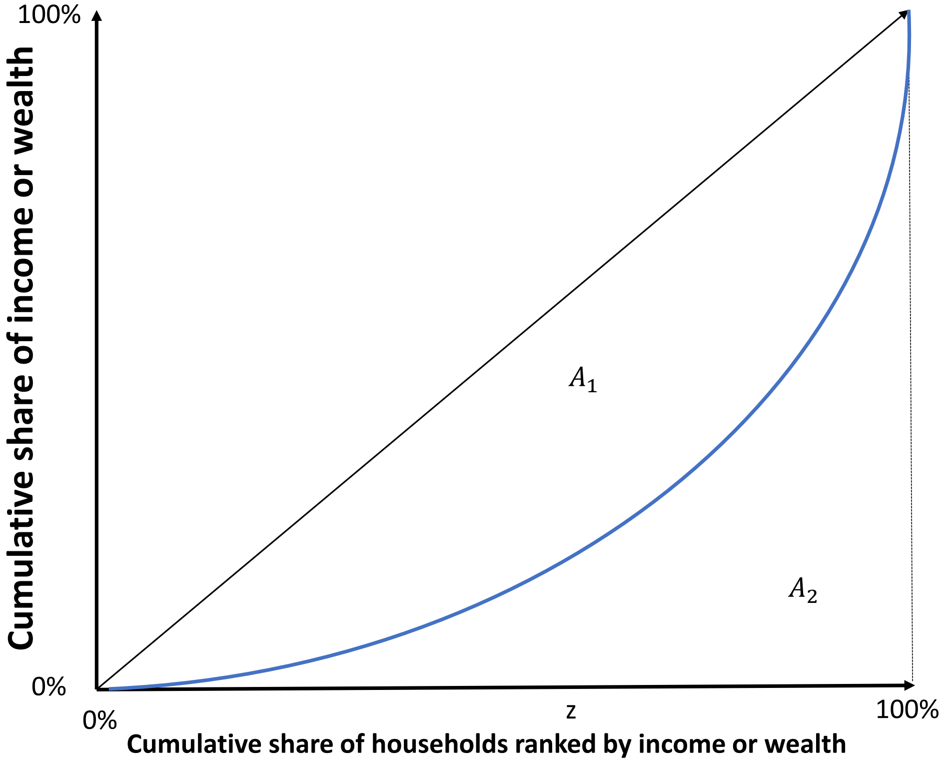
$$Gini = \frac{A_1}{A_1 + A_2}.$$

Since the area $A_1 + A_2$ is just an isosceles right triangle with sides of length 1, this always has an area of 1/2, and so we can rewrite the Gini coefficient as

$$G = 2A_1. \tag{1}$$

These relationships will be used extensively in what follows. The next step is to estimate the Lorenz curve. This will be done first using estimates of the income distribution in

Figure 1: Sample Lorenz Curve

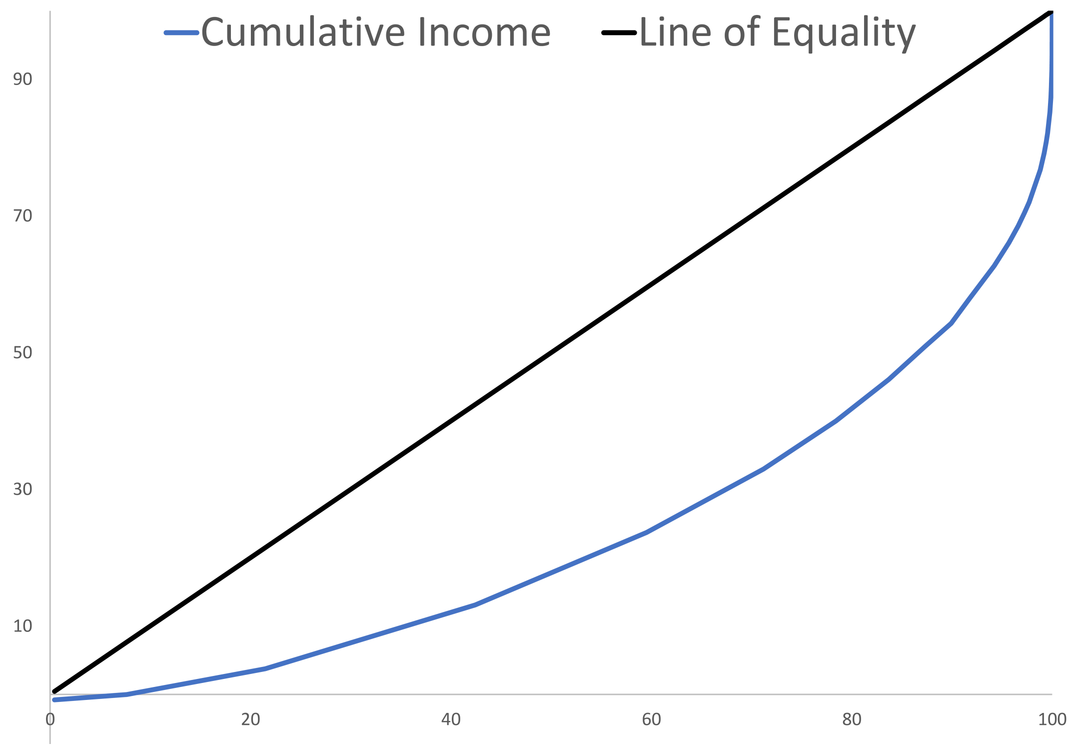


the data for 1929. Next, assumptions about statistical distributions of income and wealth, specifically, the assumption that the distributions of income and wealth follow Exponential and Pareto distributions, will be used to estimate the impact of these policies on inequality in 1934. In what follows, the fiscal impacts of these redistribution plans will not be considered directly, and instead, it will be assumed that income or wealth is either created or destroyed as needed. The implications of different tax plans to fund these programs is discussed later.

4 Estimates of the Income Distribution for 1929

We do have some estimates of income constructed by the Brookings Institute for 1929 using tax records and household surveys (Leven et al., 1934, p. 54). These include share of households in different income bins alongside the share of income these bins corresponds to, as well as cumulative totals for the percent of families and the percent of income. These estimates are compared to those we obtain from the Pareto and exponential distributions we assumed earlier to see if these compare. While there are estimates for income in this source, corresponding estimates for wealth are not provided. The table provides cumulative totals, which defines a Lorenz Curve as can be seen in Figure 2.

Figure 2: Lorenz Curve, Income, 1929



Calculating a Gini coefficient is also straightforward. However, I can only approximate the curve using the bins used by the enumerators. I will assume that average incomes are the same in each bin, as I have no other information about the distribution *within* the bins. This will mechanically decrease the estimated level of inequality to some degree. Specifically, the areas under the Lorenz curve is calculated as the sum of the rectangular areas implied by each bin of household shares and the average income of that group. For these data, the

Gini Coefficient is 47.

Next, what the counterfactual distribution would be for the minimum income floor and the maximum income ceiling should be calculated. The average income is calculated as the total income ($ 77.116 billion) divided by the total number of families (27.474 million) which is about $2,800 per family. One-third of that is $936, which is rounded up to $1,000. 21.5% of households make $1,000 or less, and they made 3.8% of income in the 1929 distribution. However, once we increase their incomes to the floor of $1,000, they then account for 7.7% of total income. This mean we must adjust down the share of the rest of the income distribution. This is given by

$$\frac{1-0.07}{1-0.038} = \frac{92.3}{96.2} \approx 96\%.$$

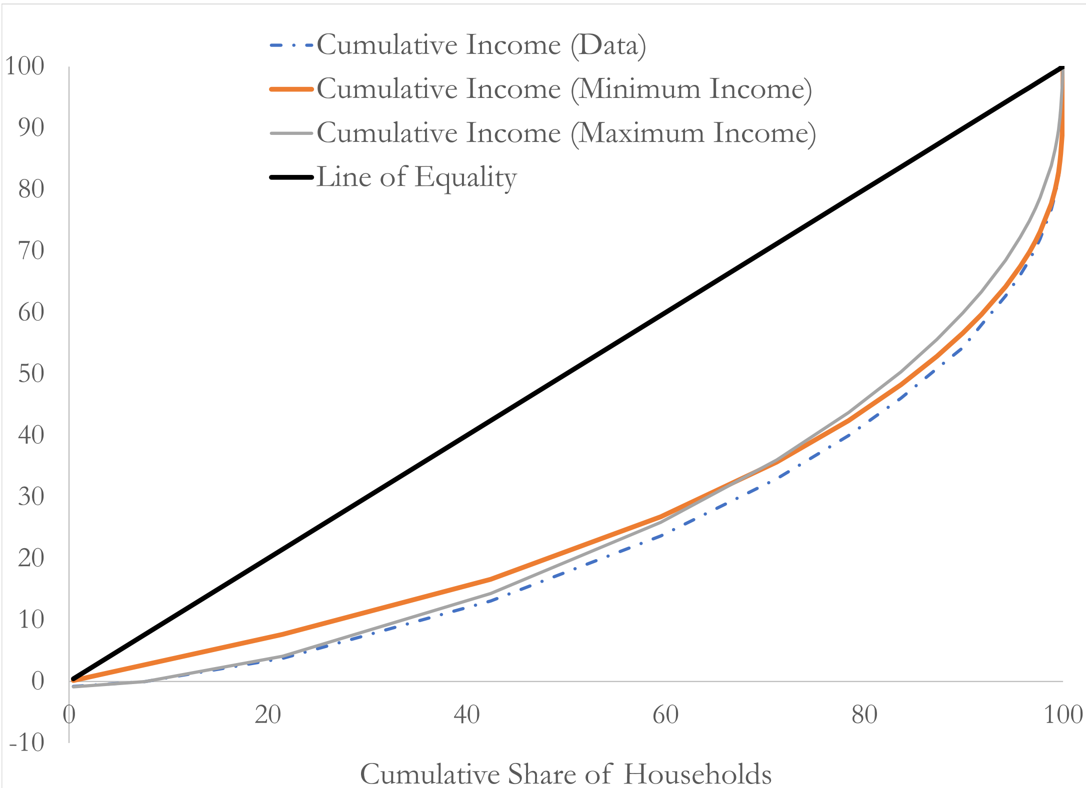
This implies a Gini coefficient of 41, a reduction of 6 Gini points from the baseline of 47. This can be seen in Figure 3.

Huey Long proposed capping incomes at $1 million, but the highest bin starts at $500,000 so I will assume that income does not exceed this level. This will provide an overestimate of the reduction in inequality as a result. These 4,000 families are 0.15% of the overall population, and they make an income of $5 billion or 6.6% of the total. If their income is capped at $500,000, then they will now earn 2.6% of total income. We we need to rescale for the lower end of the distribution, as they now represent a larger share of total income. This scaling factor is

$$\frac{100-6.6}{100-2.9} = \frac{96.9}{88.6} = 1.09.$$

The Gini coefficient in this case is 42, representing a decline in the Gini coefficient of 5 points from the original distribution of income. This distribution can also be seen in Figure 3.

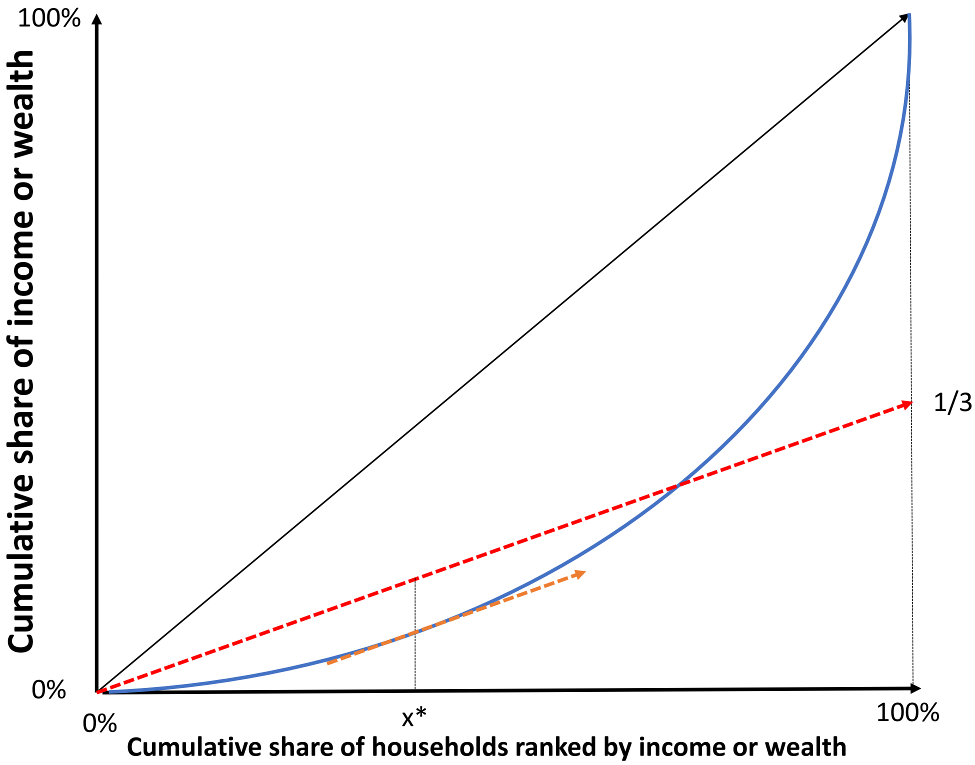
Figure 3: Lorenz Curve, Income, with Counterfactuals, 1929



5 Counterfactual: Minimums

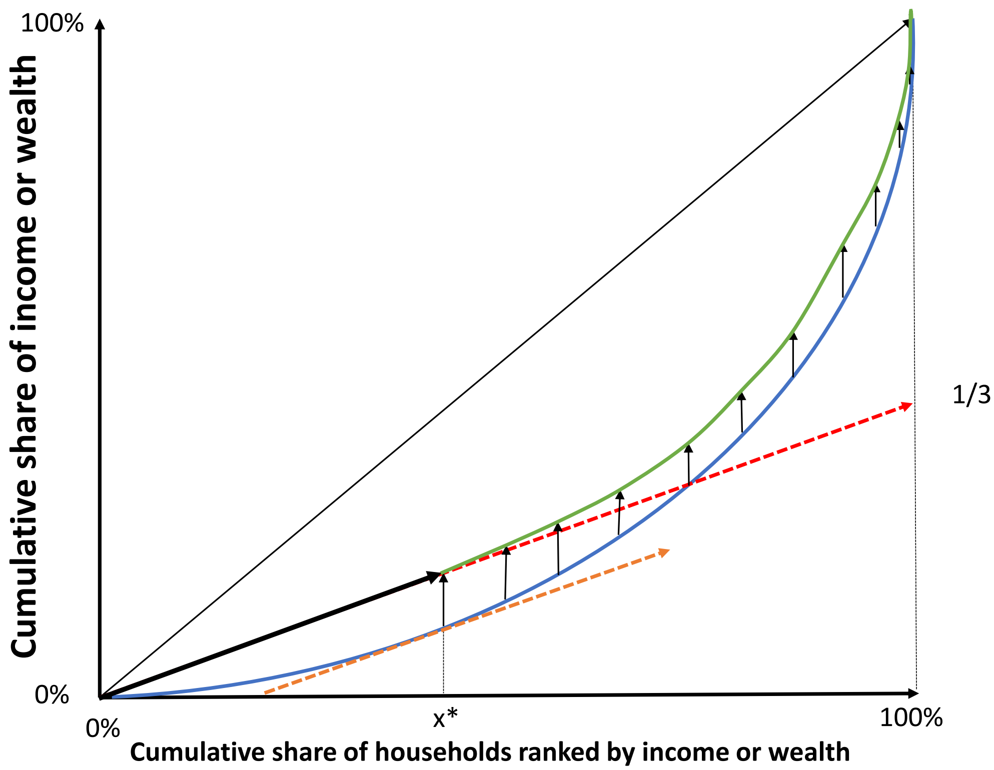
The guaranteed thresholds of one-third for income and wealth in the Share Our Wealth program are convenient to calculate using a Gini coefficient. Any household earning less than that amount would be brought up to the level of one third of the average. First, consider the case of perfect equality, where the Lorenz curve would be a 45° line. That case corresponds to each household getting the average (mean) income or wealth. If poor households are getting no less than one third of the average, then there will be a straight line emanating from the origin, with an angle of 15°.

Figure 4: Minimum Wealth or Income Lorenz Curve



The reader will recall that the Lorenz Curve cumulates the shares of income, which is an integral of household income. To obtain the household income at any point requires taking the derivative, which is the slope. Households making a third of the average can be found where the slope is the same as 1/3 of the 45° line, which is the 15° line. This can be seen in Figure 4.The distribution will then be shifted upwards to the 15° line through that point, as all households will make the same amount, so the slope will be constant. Past that point, the levels of income or wealth of richer households will be unaffected by the minimum, but will be now a smaller share of the "pie" as the poor will have a larger share. This can be seen in Figure 5.

Figure 5: Minimum Wealth or Income Lorenz Curve: Scaled



5.1 Exponential Distribution

The Pareto Distribution is often used to analyze inequality, and we will use that distribution to consider the maximum income and wealth ceilings. However, the Pareto distribution is not helpful in estimating lower-income groups, as it has a minimum income, while many poor households have income and wealth levels near zero, or potentially negative. Instead, the exponential distribution perfroms better in estimating the distribution on lower incomes, as shown by Drăgulescu and Yakovenko (2001). The probability distribution function, P(r), over income or wealth levels, r, is defined as

$$P(r) = \frac{e^{-r/R}}{R}. \tag{2}$$

where R is a scale parameter that is also the mean of income or wealth

$$\int_0^\infty r(P(r))dr = R. \tag{3}$$

To find the Lorenz Curve, the integral over the entire support from 0 to ∞ should be calculated. To simplify the expressions, ρ is defined as r/R. The fraction of households ranked by wealth or income at or below ρ, x(ρ), is

$$x(\rho) = 1 - e^{-\rho} \tag{4}$$

and the share of cumulative income for those households, y(ρ), is

$$y(\rho) = x(\rho) - \rho e^{-\rho}. \tag{5}$$

Since the slope of the 45° line is 1, we want the point where the slope is 1/3. The derivative of $x(\rho)$, $x'(\rho)$, yields this slope, or

$$x'(\rho) = \rho e^{-\rho}, \tag{6}$$

which is a rewriting of Equation 2. Solving for ρ results in 0.62, which corresponds to 46% of the population making less than 1/3 of the average in an exponential distribution.

5.2 Impact on the Gini Coefficient

Next, consider the impact of SOW on the Gini coefficient. The Gini coefficient for the Exponential Distribution is always 0.5, so there is no calibration to the distribution of the time. However, now we are going to set a minimum income or wealth floor, which will mean the Gini coefficient will fall as the distribution will be more equitable than the Exponential.

First, calculate the area under the Lorenz curve (AUC) for the exponential distribution for those affected by the floor. It will be useful to rewrite Equation 5 as

$$y(\rho) = x(\rho) + [1 - x(\rho)]ln[1 - x(\rho)] \tag{7}$$

This is

$$\int_0^{0.62} (y)dx = \int_0^{0.62} \left[x + (1-x)ln(1-x)\right] dx \tag{8}$$

or

$$\left[\frac{x^2}{2} - \frac{(1-x)^2}{2}ln(1-x) + \frac{(1-x)^2}{4}\right]_0^{0.62} = 1.9\% \tag{9}$$

This compares to the area under the curve for the income or wealth floor, which will be

$$\frac{1}{2}(0.46)\frac{(0.46-0)}{3} \approx 3.6\% \tag{10}$$

We could then consider what the Gini coefficient would be if we just considered this section of the distribution corresponding to the lowest 46% of the distribution. I will call this the "partial Gini" for the piecewise calculations equivalent to the Gini Coefficient over only a portion of households. Focusing only on this portion of the distribution, the area under the curve will be $0.5^*(0.46)^2 = 10.7\%$. We will thus obtain a partial Gini of 82 for the original distribution, and a partial Gini of 67 for the counterfactual distribution.

However, we are not done. As the lowest 46% of the population now gets 3.6% of the total income rather than 1.9%, that means that the upper 54% of the population now gets 96.4% of the total income rather than 98.1% of the total income. This will shift up the Lorenz curve, as can be seen in Figure 5. This involves shrinking the difference between the two curves by 96.4/98.1=0.98. This implies taking the integral

$$\int_{0.46}^{1} 0.98(x-y)dx = 0.99\left[\frac{x^2}{2} - \left(\frac{x^2}{2} - \frac{(1-x)^2}{2}ln(1-x) + \frac{(1-x)^2}{4}\right)\right]_{0.46}^{1} \tag{11}$$

or

$$0.98\left[\frac{(1-x)^2}{2}ln(1-x)-\frac{(1-x)^2}{4}\right]_{0.46}^{1}=36.4 \tag{12}$$

This 36.4% result is slightly less than the original difference in the areas under the curves of 36.8%. As the area under the line of equality for this portion is 47%, this implies that the Gini coefficient for this portion is reduced from 78 to 77, a small reduction. This small effect occurs because the scaling of the rest of the distribution is fairly small, as only about 1% of income is removed from the top 76% of the population.

One can then calculate the overall Gini coefficient by summing the two areas under the curves. This counterfactual distribution has a Gini coefficient of 46, and the reader will recall that the Exponential always has a Gini coefficient of 50. This is a small reduction. This is due to few factors. For one, bringing up the poorest households to one-third of the average income still implies a large gap from total equality where all households would make the average. While the additional income for the poorest households does reduce the share of income for the top of the distribution, this effect is small.

Finally, the geometric properties of the Gini coefficient mean that impacts on higher income groups are more important for the total area under the curve. If there is total inequality, with one household owning everything, then the difference in the areas under the curve below 0.64 will be 0.107, or about 21% of the total area under the 45° line, while above 0.64 the area will be 0.393, or 79 % of the total area under the 45° line. This, perhaps, points to one potential drawback to the Gini coefficient, given that income improvements for the poor matter less than income improvements for the rich. However, all inequality measures have pros and cons, and this is the measure being considered here. This limits the amount of inequality reduction (as measured by the Gini coefficient) that can be achieved by raising the incomes of the poorest households in the distribution.

6 Counterfactual: Maximums

Next, we need to find the point at which the maximum wealth or income threshold is met, or where the income or wealth ceiling binds. No household makes any more wealth or income beyond that point, whether through gifts, or through discouragement of work or investment due to the cap. The implications for public finances will be discussed later, but for now we are looking at inequality exclusively. First, we calculate the ratio of maximum income or wealth, x_{max}, to the average (mean) income or wealth, μ, which we call γ, as

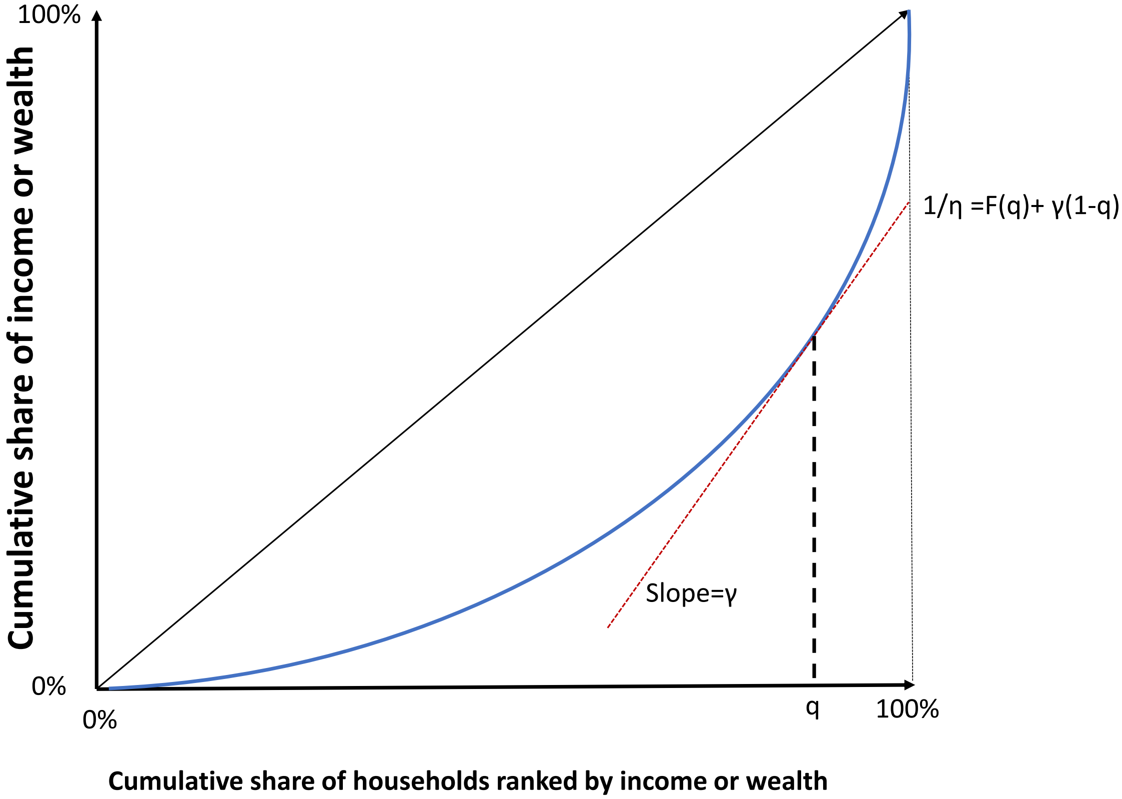
$$\gamma = \frac{x_{max}}{\mu}.$$

Since the Lorenz curve measure the cumulative income shares as a cumulative distribution function, the derivative will be the probability distribution function, which will measure the ranked income level of households at that percentile of the income distribution. Define w(x) as the point on the income or wealth distribution corresponding to the xth percentile on the distribution, and F(x) as the corresponding point on the Lorenz curve for the xth percentile, with q being the point on the income or wealth distribution where the income or wealth ceiling binds. Then,

$$\gamma = \frac{d}{dw}F(q). \tag{13}$$

These variables are displayed in Figure 6. Based on this threshold, q, we can then find the implied position on the Lorenz Curve, $F(q)$. All the rich households (the richest 1-q of the population) will have income or wealth m after the income or wealth ceiling is imposed, so the slope of the Lorenz curve will be γ from q to 1, following the red dashed line. Starting from the point $[q, F(q)]$, the (counterfactual) Lorenz curve would be a straight line, going 1-q units to the right and $\gamma(1-q)$ units up. This will be at the point $(1, F(q) + \gamma(1-q))$.

Figure 6: Maximum Wealth or Income Lorenz Curve: Finding q

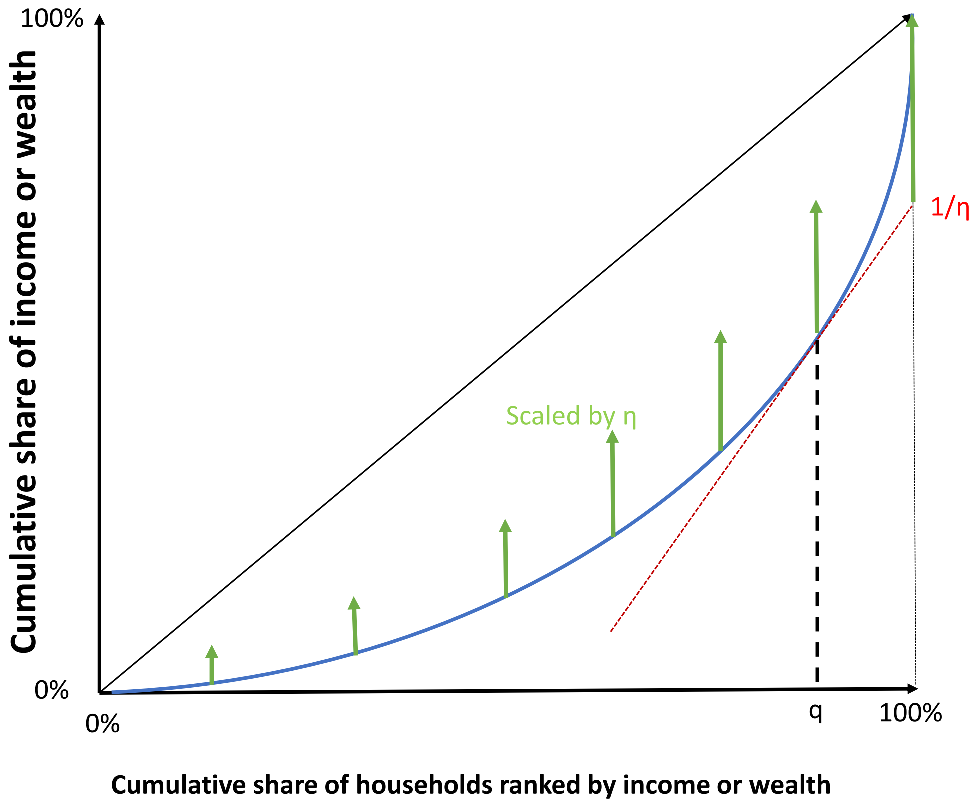


The reader will note that

$$F(q) + \gamma(1 - q) < 1, \gamma(1 - q) < 1 - F(q).$$

This simply implies that the maximum wealth or income ceiling reduces the wealth or income of the richest households. However, keeping the blue line to the left of q and following the red line to the right of q this is not a valid Lorenz curve, as $F(q) + \gamma(1 - q) < 1$. The dashed red line does not reach one once all households are cumulated, as $F(q) + \gamma(1 - q)$ is less than one. This means the rest of the Lorenz curve must be scaled up, as a valid Lorenz Curve must cumulate 100 % of income for 100% of households. The fact that the cumulative income or wealth for the entire population must be scaled from $F(q) + \gamma(1 - q)$ to 1 requires multiplication of all the cumulative shares of income (F(w)) by a scale factor, called η.

Figure 7: Maximum Wealth or Income Lorenz Curve: Scaled

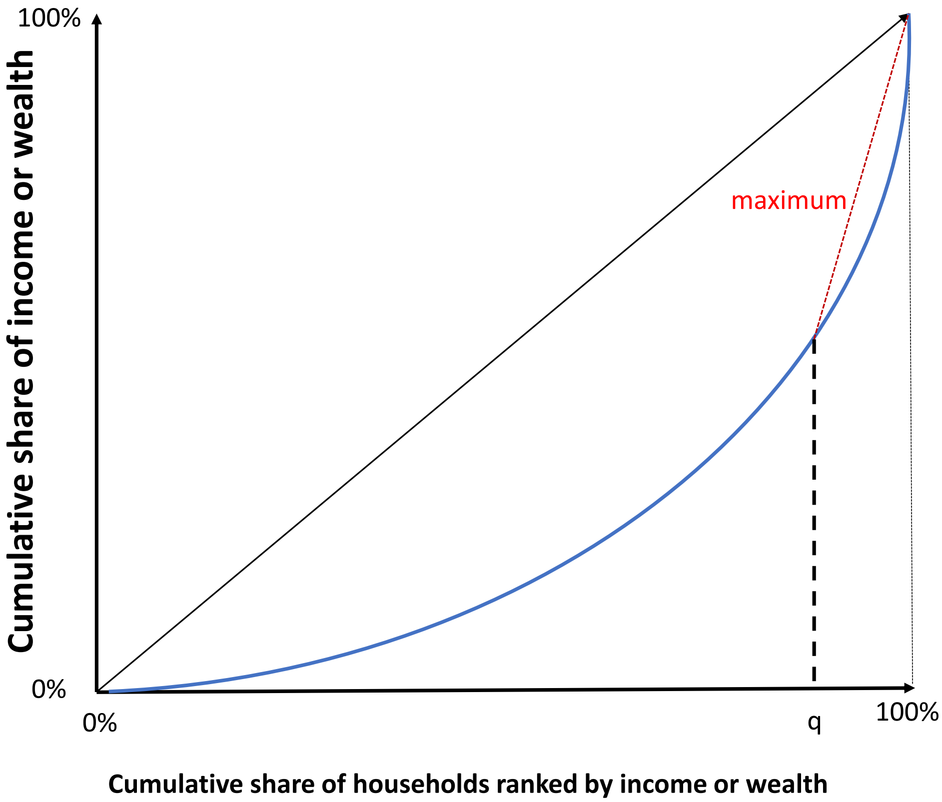


$$\eta = \frac{1}{F(q) + \gamma(1-q)} = [F(q) + \gamma(1-q)]^{-1} > 1. \tag{14}$$

This can be seen in the green lines in Figure 7. To give a simple example, start from a case where the top 10% wealthiest household have half the wealth, which implies that the bottom 90% have half the wealth. If we then halve the wealth of the top 10% through a maximum wealth, then the lower 90% will have 75% of the wealth (despite having the same amount of wealth as before in dollar terms), and the top 10% will have 25% of the wealth. This will shift up the Lorenz curve for the lower 90% to be 50% higher than it was before.

Let's further assume that the maximum wealth affects the entire top 10%, so they all now

Figure 8: Maximum Wealth or Income Lorenz Curve: Counterfactual



have the same wealth, which is now 5 times the average wealth. This will then result in a straight line with slope 5 for the rightmost segment from the 90th percentile to the complete population ($\approx$ 100th percentile). This will result in a new Lorenz Curve like Figure 8, where the entire Lorenz Curve is scaled up by a factor of η.

6.1 Pareto Distribution

The Pareto Distribution is commonly used to model inequality when the income share of upper income or high wealth households is available (Pareto, 1964; Jones, 2015; Armour et al., 2016; Gabaix et al., 2016). A useful feature of the Pareto distribution is that the upper income or wealth share defines a parameter, the Pareto Index, which then implies a distribution of income or wealth for the remaining households. This is useful for this historical period, as distributional accounts are only available for the richest Americans who are filing income tax returns on their income and wealth. While most households did not file income tax returns, the assumption that the distribution is Pareto means we can infer what their income and wealth would have been. The data here come from Piketty et al. (2018), who provide estimates of the top 10% share of income and wealth as well as the top 5%, top 1%, and even shares within the top 1%. Given that these estimates are extrapolated from the top shares to apply to the entire distribution, the broadest measure, which is the top 10% share, is used.

The parameter α, also called the Pareto Index, governs inequality in this distribution, with a higher α parameter representing a larger share in the top percentiles. Given top income shares for given top percentiles, the α parameter can be backed out, and then applied to the entire distribution, yielding a full distribution of income.

For a given Pareto Index, α, the level of income, x , is given by $x = n^{-1/\alpha}$, where n is the fraction of households with income above that level. This can also be written as

$$n = x^{-\alpha}. \tag{15}$$

From this Pareto distribution, the share of income, s, accruing to households above income x is $s = x^{1-\alpha}$. Similarly, the share of income going to the highest n percentiles is $s = n^{\left(1-\frac{1}{\alpha}\right)}$.

For 1934, the year Huey made his Share Our Wealth speech, the share of the top 10 % of the income distribution was 45.8 according to Piketty et al. (2018). This results in a Pareto Index (α) of 1.52 for income and of 1.08 for wealth.

There is a simple relationship between the Gini Coefficient, G, and the Pareto shape parameter, α:

$$G = \frac{1}{2\alpha - 1} \tag{16}$$

Since we already know α, we can calculate the Gini Coefficient for Income and Wealth in 1934, which is 49 for Income and 86 for Wealth. The impact of Huey Long's "Share Our Wealth" plans will be compared to the baseline here to gauge the impact on inequality.

6.2 Calculating q

Next, the threshold q should be calculated, again using the Pareto distribution. Recall that the threshold, q, is defined in terms of the position on the income or wealth distribution. However, first we need to know what level of wealth or income, x_{max}, this threshold corresponds to. Using the properties of the Pareto distribution from Equation 15, this would be

$$(1 - q) = x_{max}^{-\alpha}. \tag{17}$$

As 1-q is the share of the population above the threshold q, who have an income or wealth above x_{max}. We can rewrite this as

$$q = (1 - x_{max}^{-\alpha}). \tag{18}$$

The maximum wealth level that was specified in the SOW program was \$5 million, and a maximum income level of \$1 million. This results in a high level of q, which is the share of households at or above this income level is $7.7^{*}10^{-10}$ and the share above this level of wealth is $5.45^{*}10^{-8}$.

We can also calculate q using the Lorenz Curve. The expression for the Lorenz Curve, for a level of income or wealth w, is $F(w) = 1 - (1 - w)^{(1-\frac{1}{\alpha})}$. For the qth percentile of the wealth distribution, this is

$$F(q) = 1 - (1 - q)^{(1-\frac{1}{\alpha})}. \tag{19}$$

The level of q will be lower than 1 by the ratio of maximum income or wealth to the average, γ, such that

$$L(q) = 1 - \gamma(1 - q). \tag{20}$$

This results in

$$\gamma(1 - q) = (1 - q)^{(1-\frac{1}{\alpha})}$$

or

$$q = 1 - \gamma^{-\alpha}. \tag{21}$$

6.3 Estimation

Next, γ, the ratio between the maximum income or wealth and the average income or wealth, should be found. The maximum income would be $1 million and the maximum wealth would be $5 million. Using the figures in Piketty et al. (2018), average household income in 1934 is $1,112 and average household wealth is $5,533.[4] For both indicators, this results in a ratio, γ, of approximately 900. This is purely coincidental, as Long's estimates of these averages were different than modern estimates. The formula for the mean in the Pareto distribution

[4]The reader will recall that Long estimated these averages to be $5,000 and $6,000 respectively.

is

$$\mu = \frac{\alpha}{\alpha - 1} \tag{22}$$

which implies a maximum wealth or income of

$$x_{max} = \gamma\mu = \frac{\gamma\alpha}{\alpha - 1}. \tag{23}$$

Table 1: Baseline Wealth and Income Ceiling

Type	Income	Wealth
α	1.52	1.08
γ	900	900
x_{max}	2,634	11,632
(1-q)	$6.4*10^{-6}$	$3.9*10^{-5}$
s	0.017	0.456
1-s	0.983	0.544
η	0.989	0.579

For a ratio of 900, and our Pareto indexes of 1.52 and 1.08, this corresponds to a maximum income of 2,634 and of wealth of 11,632.[5] The top shares going to household above the thresholds q is 1.7% for income and 45.6% for wealth. This results in a table of important parameters in Table 1. In another speech recorded in the Congressional Record of July 22, 1935, Long proposed to limit the ratio of maximum to average income or wealth to a factor of 100. The corresponding parameters can be found in Table 2.

At this point, we have found the income and wealth distribution through the thresholds q. Next, we need to find out how much less income or wealth accrues to the top (1-q)

[5]These values could be rescaled to be in 1934 dollars, but since everything is in relative terms and modern readers are not familiar with income or wealth levels of the time in terms of unit of account, the values are kept in "Pareto" terms.

Table 2: Alternate Wealth and Income Ceiling

Type	Income	Wealth
α	1.52	1.08
γ	100	100
x_{max}	293	1292
(1-q)	1.8*10^{-4}	4.2*10^{-4}
s	0.052	0.548
1-s	0.948	0.452
η	0.965	0.494

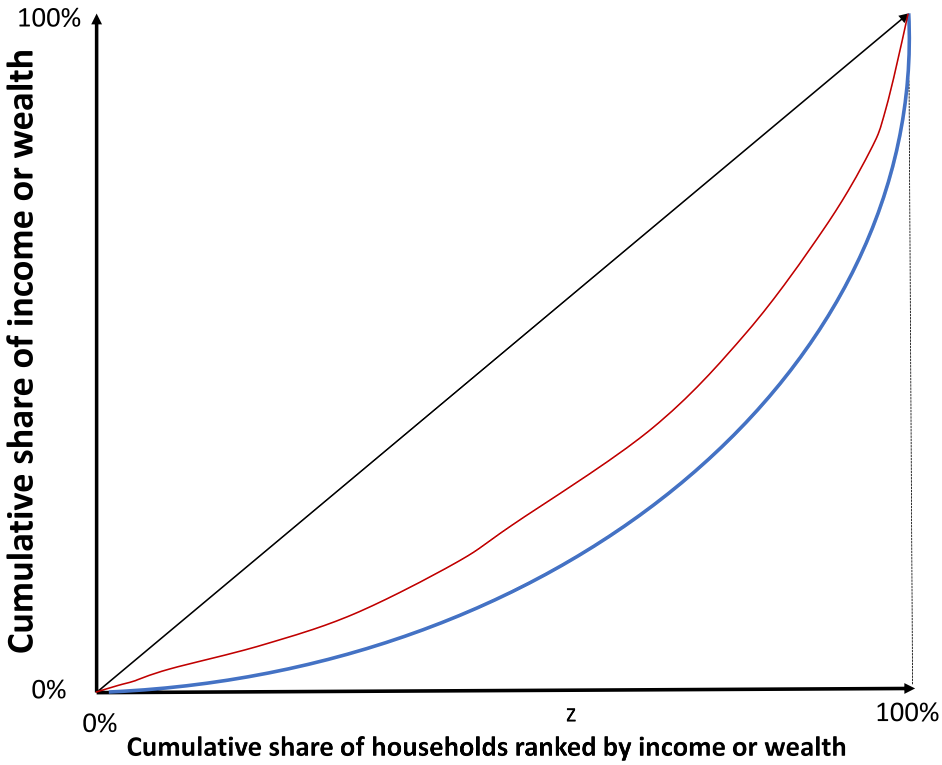
households with the maximum ceiling imposed. The new sum of shares, η, is

$$\eta = (1 - s) + \gamma(1 - q) < 1. \tag{24}$$

The calculated values for η can be found in Table 2 above. The reader will notice that the new cumulated shares over all households do not sum to 1, and so do not correspond to a valid Lorenz curve. This is because the richer households now have a smaller share of income or wealth, and so the total income or wealth total is smaller than before. This means that every household share now makes up a larger share of the total, and so the Lorenz Curve needs to be shifted up to correct for this and obtain a valid Lorenz Curve. Specifically, the cumulative share of income must be scaled up by $1/\eta$ so that the shares sum to 1. This can be seen in Figure 9.

This rescaling will reduce the Gini coefficient. The reader will recall that the Gini coefficient is derived as the difference between the area under a line of perfect equality (45 degree line) and the cumulative share of income for ranked households divided by the total area. Since the total area is just a right triangle with area 1/2, this is effectively doubling the difference in areas under the curves. Call this difference in areas D and the associated Gini

Figure 9: Illustration of rescaling Lorenz Curves



as G. This can be expressed as

$$D_0 = \int_0^1 [w - F(w)]\, dw = \frac{1}{2}w^2 - \int_0^1 F(w)dw = \frac{G_0}{2} \tag{25}$$

or

$$\int_0^1 F(w) = \frac{1}{2} - D_0. \tag{26}$$

The definition of the Gini coefficient for the Pareto distribution is

$$G_0 = \frac{1}{2\alpha_0 - 1}. \tag{27}$$

This implies

$$D_0 = \frac{1}{2(2\alpha_0 - 1)} \tag{28}$$

and

$$\int_0^1 F(w) = \frac{1}{2} - \frac{1}{2(2\alpha_0 - 1)}. \tag{29}$$

Next, a counterfactual distribution must be constructed to rescale the entire distribution. We will rescale the area above the max without capping wealth at the new level, so this is an intermediate step in the construction of the counterfactual. This allows the two effects to be separated out. The effect from making the richest households equal above the ceiling will be considered in the next section.

This counterfactual difference in areas is

$$D_1 = \int_0^1 \left(w - \frac{F(w)}{\eta} \right) dw = \frac{1}{2} - \frac{1}{\eta} \int_0^1 F(w) dw. \tag{30}$$

We can then plug in Equation 28 and use the definition of the Gini coefficient to find

$$G_1 = 1 - \frac{2}{\eta} \left(\frac{1}{2} - \frac{1}{2(2\alpha_0 - 1)} \right) = 1 - \frac{1}{\eta} \left(1 - \frac{1}{(2\alpha_0 - 1)} \right). \tag{31}$$

Notice that this will allow us to easily calculate the new implied α_1, returning to our definition of the Gini coefficient for the Pareto distribution,

$$G_1 = \frac{1}{2\alpha_1 - 1}. \tag{32}$$

Rearranging yields

$$\alpha_1 = \frac{1}{2}\left(1 + \frac{1}{G_1}\right). \tag{33}$$

Plugging in Equation 31 results in

$$\alpha_1 = \frac{1}{2}\left(1 + \frac{1}{1 - \frac{1}{\eta}\left(1 - \frac{1}{(2\alpha_0 - 1)}\right)}\right). \tag{34}$$

This expression is complicated but is ultimately a function of parameters.

6.4 Calculations for Maximum Counterfactual I

Next, the tables are updated to calculate the differences in Gini coefficients between the original distribution and the counterfactual. The differences in Gini coefficients are calculated directly and not rounded, which may cause them to be slightly different than the figures obtained by differencing the rounded numbers.

Table 3: Baseline Wealth and Income Ceiling and Counterfactual

Type	Income	Wealth
α_0	1.52	1.08
γ	900	900
η	0.989	0.579
Gini_0	49	86
α_1	1.53	1.16
Gini_1	49	75
Gini Difference (PPs)	-0	-9

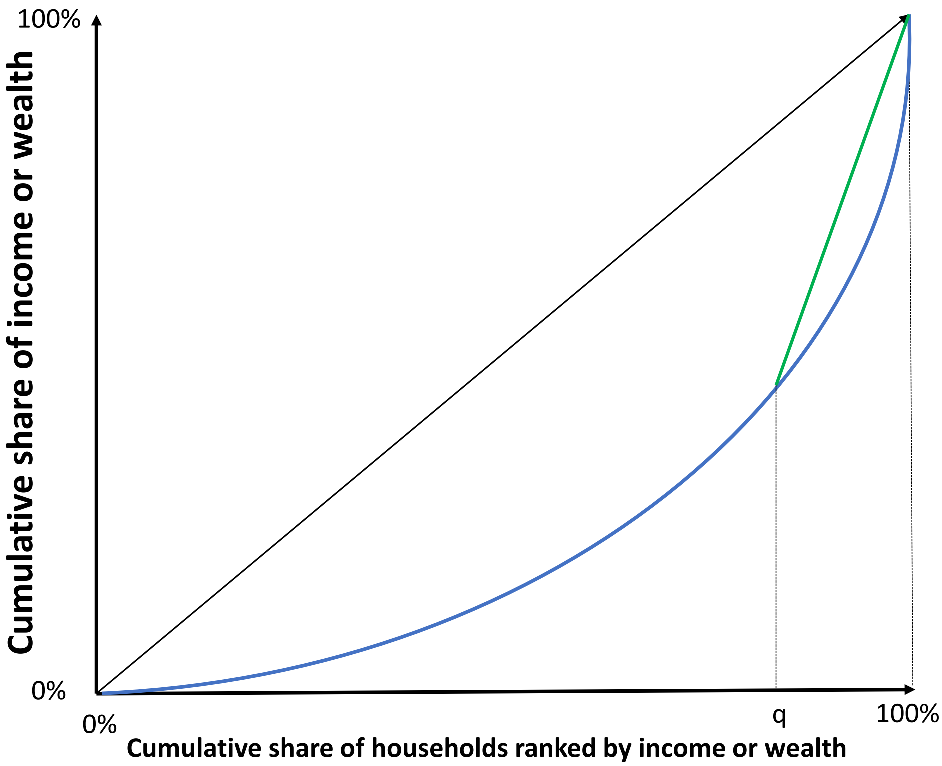
6.5 Upper Distribution Flattening

The final aspect to consider is the increase in equality for top income groups due to the maximum income or wealth caps. This will result in a more equitable distribution that

Table 4: Alternative Wealth and Income Ceiling and Counterfactual

Type	Income	Wealth
α_0	1.52	1.08
γ	100	100
η	0.965	0.494
Gini_0	0.491	0.856
α_1	1.56	1.20
Gini_1	0.472	0.709
Gini Difference (PPs)	-2	-15

Figure 10: Upper Distribution Flattening



would prevail if the distribution had remained a Pareto Distribution. The Lorenz Curve will be unchanged below the cap, which occurs at q. However the area under the curve will be different, as can be seen in Figure 10. The area under the scaled Lorenz curve will follow the Pareto distribution following

$$A_S = \int_q^1 F_S(w)dw = (1 - F_s(q))^{\left(1 - \frac{1}{\alpha_1}\right)}, \tag{35}$$

where F_S refers to the scaled Pareto Distribution, corresponding to α_1. The flat portion, due to the maximum income or wealth, is composed of a rectangle with base $(1-q)$ and height $F_s(q)$ and a triangle of height $1 - F_s(q)$ and base $(1-q)$, resulting in an area of

$$A_F = (1-q)F_s(q) + \frac{1}{2}(1-q)(1 - F_s(q)). \tag{36}$$

The change in the Gini coefficient will be:

$$\Delta_2 G = 2(A_S - A_F) = (1 - F_s(q))^{\left(1 - \frac{1}{\alpha_1}\right)} - \left[(1-q)F_s(q) + \frac{1}{2}(1-q)(1 - F_s(q))\right] \tag{37}$$

To display the impact on inequality, some key results are presented in the following tables.

Table 5: Baseline Wealth and Income Cap, Upper Tail Flattening

Type	Income	Wealth
α_0	1.52	1.08
γ	900	900
α_1	1.53	1.16
s_1	0.016	0.238
Gini_0 (PPs)	49	86
Gini_1 (PPs)	49	75
Gini_2 (PPs)	45	28

Here we can see the impact on inequality from the maximum income and wealth caps. There are two effects. By limiting the top wealth and income levels, this makes the rest of the distribution relatively richer. This is the first effect. However, this effect is limited, as can be seen in comparing the Gini coefficient going from G_0 to G_1. This is because inequality is, in large part, driven by the upper percentiles having a large share of income and wealth, and

Table 6: Alternate Wealth and Income Cap, Upper Tail Flattening

Type	Income	Wealth
α_0	1.52	1.08
γ	100	100
α_1	1.56	1.20
s_1	0.045	0.267
$Gini_0$ (PPs)	49	86
$Gini_1$ (PPs)	47	71
$Gini_2$ (PPs)	38	18

so non-rich households having a larger share of income or wealth doesn't fundamentally alter that relationship. However, the second effect is much bigger. By capping maximum income and wealth, this creates conditions of perfect equality within upper income groups. Since much of the gap between perfect equality and the Lorenz Curve comes from the upper tail, this results in a sharp decrease in inequality. Indeed, since wealth is held more unequally, this means that more of the wealth distribution is held by households subject to the cap, which means that the drop in inequality is larger for wealth than for income, resulting in an overall more equitable distribution for wealth than income.

7 Comparison of estimates for 1929

Above, the Brookings data for 1929 was presented, as well as the implications for minimum guarantees and maximum caps on income and wealth for 1934, the year that the Share Our Wealth speech was made. We also have estimates of the income and wealth distribution for 1929, which can provide an apples to apples comparison for 1929. This year is perhaps somewhat special, as it is the end of both a period of American prosperity in the 1920s and one of the most kinetic bull market in Wall Street history. As Roine et al. (2009) have shown for the twentieth century, periods of high economic growth and financial development increase the top income shares, though the financial crisis which began in 1929 may have already lowered their income shares as well.

In any case, it is informative at this point to compare the estimates directly where possible, so estimates of the original Gini coefficient and the counterfactual Gini coefficient for the income distribution in 1929 are presented in Table 7 below. Geloso et al. (2022) have criticized the estimates of Piketty et al. (2018) and provide their own series as an alternative, which is also presented for comparison for the year 1929.[6] While the levels of inequality found in Geloso et al. (2022) are lower than those of Piketty et al. (2018), the SOW counterfactuals have the same Gini coefficient in 1929.

Table 7: Direct Comparison of 3 Estimates for 1929 Distribution of Income

Type	Exponential	Brookings	Pareto Piketty-Saez	Pareto Geloso et al.
α			1.56	1.63
Original Gini	50	47	46	44
γ	100	100	100	100
Gini (Minimum, Counterfactual)	46	41		
Gini (Maximum, Counterfactual)		46	38	38
Fall in Gini (Minimum, PPs)	-4	-6		
Fall in Gini (Maximum, PPs)		-1	-8	-6

Here, we are seeing that the Brookings estimates are finding a greater estimate of the reduction in inequality due to the minimum income guarantee than for the assumed Exponential distribution. This is likely due to the presence of negative incomes in the Brookings estimates, while the Exponential distribution requires non-negative incomes. Negative income households generate a large area under the curve, as the cumulative income is negative for the lower end of the distribution. Bringing these households up to the level of one-third of the average reduces inequality more than in the Exponential distribution.

For the maximum income cap, the reduction in the Gini coefficient is the same when using the Geloso et al. data and a Pareto distribution are the same as the Brooking estimates,

[6]There are not top wealth shares and only estimates of top income shares in Geloso et al. (2022), so I include them here and not in the previous sections that considered both income and wealth distributions.

but is larger for the Pareto distribution using the Piketty-Saez data. This is perhaps not surprising, as the Brookings estimates are necessarily averaged at the top of the distribution due to the bins used, and so using the average of the top incomes already reduces our estimates of inequality significantly relative to a distribution that takes into account the "fractal" nature of inequality for top earners (Gabaix et al., 2016). Top households, say within the top 1% , have significant inequality between the very richest and the rest of the 1%, and there the Pareto Distribution likely gives a better sense of the true reduction in inequality for top income groups.

8 Discussion

This paper has examined the effects on inequality of a minimum income or wealth guarantee and a maximum income or wealth ceiling following the proposals of Huey Long in his 1934 "Share Our Wealth" Program. Due to the large amount of inequality in wealth holdings by the richest, the maximum wealth ceiling would reduce inequality the most, especially if the cap is taken to be about 100 times the average wealth. A ceiling on maximum income would generate the second largest reduction in inequality as measured by the Gini coefficient, especially if the cap is 100 times the average. A minimum income floor reduces inequality somewhat, especially if we consider the possibility of households with negative incomes. While we do not have data on the wealth distribution at the bottom of the distribution, modern data indicate that a significant share of households have a negative net worth, so the reduction in equality for a minimum level of wealth would be not insignificant.

The analysis could be expanded to consider not just the direct impact on inequality, but also the fiscal impact. Depending on the nature of the fiscal program, this could have additional consequences for inequality. Confiscatory taxes of 100% likely will not generate much revenue at all, as there is no benefit to rich households in earning this income. However, steeply progressive rates on top incomes would raise a significant amount of revenue, which could be used to fund policies which are then used to fund transfers to lower income groups (Piketty et al., 2014). Steeply progressive taxes would still reduce inequality significantly, while raising revenue as well, so would likely be preferred to maximums on wealth or income for that reason. But maximum incomes and wealth are very effective at reducing inequality, even if they raise little to no revenue.

For the policies of minimum income and wealth, a funding mechanism has not been specified. While spending can be undertaken without corresponding tax revenue, with the difference being bridged by borrowing, this is not sustainable for a large program like this one. While Huey assumed that his policies for minimum income and wealth could be funded out of income and wealth confiscated by the wealthy, this would likely collect significant revenue in the first year, as it caught rich households by surprise. However, between the confiscation and the behavior changes, these confiscatory taxes would produce little to no revenue in subsequent years. To fund a minimum income or wealth would then require other sources of revenue.

Regarding a minimum wealth, there would be additional things to consider. New household formation and other sources of churn would require new infusions of wealth and income to newly poor households all the time. Depending on the type of wealth, capital losses could reduce the value below the minimum, resulting in a need for fresh infusions. For both minimum income and minimum wealth guarantees, it has been assumed here that these are structured as guaranteed minimums, not as universal basic income or wealth programs. This made the analysis much more straightforward, as the existing distribution of income or wealth could simply be shifted up for everyone below the minimum. However, this would result in 100% implicit taxes for anyone with wealth or income below the minimum, discouraging work effort or savings. To mitigate these effects, a program that distributes income or wealth more broadly and then taxes more on this income or wealth back from higher income groups might be preferred, but this is not the policy proposed by Long's Share Our Wealth program. In any case, this involves weighing the impact of a significant increase in tax revenue to fund a universal program versus a less expensive program of guaranteed minimums which will have its own behavioral impacts separate from the tax effects.

9 Conclusion

In 1934, Huey Long proposed a radical plan for income and wealth redistribution called "Share Our Wealth." This plan contained many provisions, including minimum income and wealth as well as maximum caps on income and wealth. The impact of these policies on inequality is analyzed by constructing counterfactuals. The original distributions of wealth and income were estimated using estimate of the income distribution from Brookings, as well as the assumption of a Pareto distribution for rich households and an Exponential distribution for poor households. Gini coefficient were used as a measure of inequality to compare the original distributions to counterfactuals had Long's policies been implemented nationally.

Maximum limits on wealth were found to reduce inequality the most, followed by maximum limits on income. These reduced inequality more than minimum levels of wealth, while a guaranteed minimum level of income reduced inequality the least. Wealth is more unequally distributed than income, with the richest households holding a large share of both income and wealth. This latter fact helps explain why caps on income and wealth were more effective at reducing inequality and guaranteed minimums for income and wealth. However, maximum income and wealth will not raise much tax revenue, so would not be effective at funding guaranteed minimums of income and wealth. Having progressive taxation of wealth and income might reduce inequality less than maximum caps on income and wealth, but this will provide tax revenues which can be used to fund transfers that benefit the poorest households.

Caps on income and wealth will do almost nothing to reduce poverty, while they are effective at reducing inequality, showing that inequality can be reduced without reducing poverty. For that reason, policies which improve the position of the poor may be preferable to those which do more to reduce inequality, like maximum income and wealth caps. For example, if we use a poverty line at one-third of the average income, then Long's program would have lifted every American out of poverty through the minimum income guarantee. On the other hand, the maximum income ceiling would reduce inequality more but would not improve the condition of the poor at all. In the end Long's most important political rival, President Roosevelt, opted not to support Long's income and wealth caps, preferring policies of progressive taxation and policies which benefited lower income groups. In the wake of these policies, inequality fell around the mid-20th century, reaching record lows without maximum income and wealth caps (Piketty and Saez, 2003; Collins and Niemesh, 2019). Even though a policy package like "Share Our Wealth" could reduce inequality substantially, other policies were effective at reducing inequality in the United States without requiring either maximum income of wealth caps or minimum income or wealth guarantees.

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