

A Real Great Compression: Inflation and Inequality in the 1940s

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Goldin and Margo (1992)

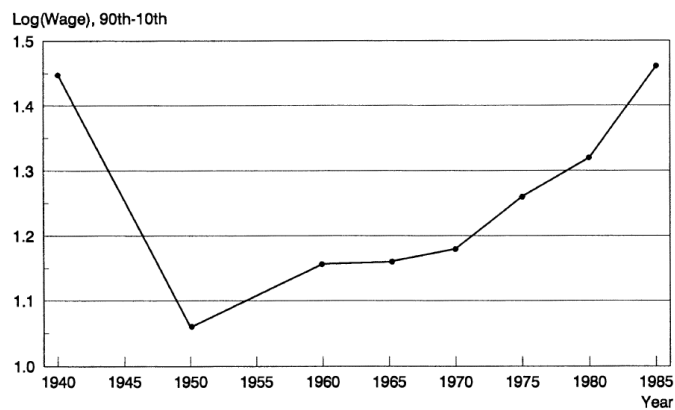


FIGURE I
Wage Dispersion across the Past Half Century: Difference in the Log Wage at the
Ninetieth and Tenth Percentiles, 1940 to 1985
Source. Table I.

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Was real wage inequality any different?

- The 1940s were a period of high inflation.
 - CPI increased by 71%.
- Research using modern data has found that inflation tends to be higher for lower-income households.
- If inflation had been 10% higher for households at the 10th percentile and 10% lower for households at the 90th percentile, the narrowing of the gap in real wages would have been about 20% smaller.
- Our contribution: measure how inflation differed by income, education and occupation, and establish the shift in real wage inequality.

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Inflation measurement

- A price index is the weighted average of changes in prices for a range of item categories, where the weights are the expenditure shares for each category.
- Inflation could differ for different types of households either because their expenditure shares differ or because the prices that they pay for specific items within an item category differ.

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Prior research on inflation gaps by income

- Expenditure shares differ across the income distribution
- But implications for inflation over the long run are generally small (Amble & Stewart 1994, Garner et al. 1996, Crawford & Smith 2002, Hobijin & Lagakos 2005, McGranahan & Paulson 2005)
 - Using more detailed item categories than prior research, Jaravel (2021) finds larger inflation differences by income decile.
 - Inflation tends to be higher for lower income groups in recessions (Argente & Lee 2021, Orchard 2022)

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Prior research on inflation gaps by income

- Prices paid for specific items might differ across groups:
 - Item quality, type of outlet, location of purchase, use of sales/bulk purchases
- Inflation is substantially higher for lower income groups. (Jaravel 2019; Kaplan & Schulhofer-Wohl 2017)
 - But limited to household goods
- No one yet has studied inflation differences for the 1940s.
- Limited understanding of the role of inflation inequality for the distribution of incomes over the long run.

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Methodology

- To estimate inflation for different population subgroups we need:
 - Data on expenditure shares for various goods and services by group
 - Data on price changes for various categories of goods and services
- Expenditure shares: 1935-36 Survey of Consumer Purchases
- Price changes: price indexes published by BLS

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Measuring expenditure shares

- 1935-36 Study of Consumer Purchases (1935-36 CEX)
 - Large national survey of expenditure patterns
 - Used to calculate expenditure weights for the CPI until the next large-scale survey in 1950
- The ICPSR digitized a sample of records from this survey
- Our final sample includes about 1900 urban families

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Measuring expenditure shares

- 1935-36 CEX a “promising source of microdata for future work” on labor markets in the 1930s.
 - Margo (1993)

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Average expenditure share

	1935-36	2021
Food	28.3	13.8
Shelter	16.9	30.5
Clothing	10.2	2.7
Utilities	6.0	6.6
Household operation	5.3	3.8
Furniture, furnishing, hhold equipment	3.4	4.2
Automobile purchase	6.0	7.6
Gasoline	3.1	3.4
Reading and recreation	6.0	5.8
Medical care	4.7	8.5
Personal care	2.1	1.2

Note. Shelter is rent for renters or the owner's estimate of rent for owners. Other expenditures not shown include tobacco, other transportation, education, and occupation expenses. Source: 1935-36 Study of Consumer Purchases and 2021 Survey of Consumer Expenditures.

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Measuring price changes by item category

- Price changes by item category are from BLS price indexes
 - Many from the website of the Bureau of Labor Statistics
 - Some from the Handbook of Labor Statistics or other BLS reports
- Baseline results use 15 item categories.
- Some issues:
 - We use rent of primary residence for all households, including owner-occupants.
 - We use a price index for new vehicles for all car purchases, including used vehicles.

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Expenditure shares by education of husband

	8 years or less	16 years or more	Price Change 1939-49 (annual rate)
Food	32.3	23.9	7.8
Shelter	17.6	16.6	1.9
Utilities ex. Electricity	5.0	3.4	6.7
Household operation	4.1	7.5	3.9
Clothing	9.3	10.3	6.6
Automobile purchase	5.0	7.0	6.7
Gasoline	2.5	3.2	4.0
Reading and recreation	5.2	7.8	5.2
Tobacco	2.1	1.5	3.9

Note. Shelter is rent for renters or the owner's estimate of rent for owners.
Source: 1935-36 Study of Consumer Purchases and BLS.

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Calculating inflation

$$\pi_t^i = \sum_{j=1}^J s_{j,1935}^i \pi_{j,t}$$

where:

π_t^i is the headline inflation rate for group i from in time t

$s_{j,1935}^i$ is group i 's average expenditure share for item j in 1935-36

$\pi_{j,t}$ is the growth rate in the price index for item j

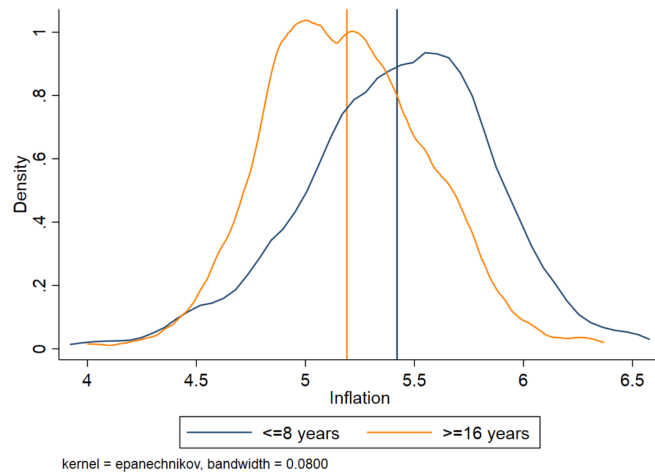
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Inflation by education of husband

	Inflation 1939-49 Annual Rate	Inflation 1939-49 Cumulative
8 years or less	5.43	73.2
9 to 11 years	5.38	72.4
12 years	5.26	70.6
13 to 15 years	5.29	70.8
16 years or more	5.22	69.5

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Inflation by education of husband



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Inflation by family income

	Inflation 1939-49 (annual rate)
Bottom quintile	5.39
Second quintile	5.36
Middle quintile	5.33
Fourth quintile	5.34
Top quintile	5.29

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Inflation by occupation of husband

	Inflation 1939-49 (annual rate)
Blue collar	5.41
White collar	5.30
Craft	5.44
Operative	5.38
Laborer	5.52
Service	5.38
Professional	5.27
Clerical	5.36

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Relative wages by occupation

	Relative Nominal Wage 1940	Relative Nominal Wage 1950	Relative Inflation	Relative Real Wage in 1950 (\$1940)
White collar	1.26	1.18	1.00	1.18
Blue collar	0.86	0.89	1.01	0.88
Craft	1.04	1.02	1.01	1.01
Operative	0.86	0.86	1.00	0.86
Laborer	0.63	0.75	1.02	0.74
Service	0.74	0.78	1.01	0.78
Professional	1.47	1.25	0.99	1.26
Clerical	0.99	0.94	1.00	0.94

Note. Relative nominal wages in columns (1) and (2) from Goldin and Margo (1992).

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Going deeper...

- Change in expenditure shares since 1935-36
 - Results similar when using 1950 expenditure shares by education of husband
- More detailed item categories
- Alternate measure of price of shelter for owner-occupants
- Used car prices

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Going deeper...

- Change in expenditure shares since 1935-36
- More detailed item categories
 - Results similar when using 87 item categories
- Alternate measure of price of shelter for owner-occupants
- Used car prices

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Going deeper...

- Change in expenditure shares since 1935-36
- More detailed item categories
- Alternate measure of price of shelter for owner-occupants
 - Results similar when using homeowner expenditures instead of rent
- Used car prices

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Going deeper...

- Change in expenditure shares since 1935-36
- More detailed item categories
- Alternate measure of price of shelter for owner-occupants
- Used car prices
 - Results similar when using an estimate of used car prices

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Expenditure shares post 1935-36

- Expenditure patterns may have changed substantially after 1935-36
 - End of the Depression, beginning and end of World War II, postwar economic growth
- Next large-scale survey of expenditures was in 1950
- No microdata
- 1956 BLS report published spending by education of husband

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Expenditure shares by education of husband

	1935-36 8 years or less	1935-36 17 years or more	1950 8 years or less	1950 17 years or more
Food	33.2	22.0	34.4	25.5
Shelter	13.9	11.9	10.5	12.8
Household operation	4.2	8.2	3.9	7.5
Utilities	7.1	5.3	4.8	3.2
Furniture, furnishing, hhold equip.	3.0	4.2	6.4	8.4
Clothing	10.1	10.5	11.2	11.8
Automobile purchase	5.6	7.5	6.1	6.5
Automobile operation	4.7	6.9	4.5	5.0
Reading, recreation and education	6.0	9.7	5.3	7.6
Tobacco	2.1	1.1	2.0	1.1

Note. Shelter includes rent, owner-occupant expenses and lodging away from home.

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Inflation by education of husband using 1950 expenditure shares

	Inflation 1939-49 (annual rate)
8 years or less	5.73
9 to 12 years	5.63
13 to 16 years	5.55
17 years or more	5.47

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More detailed item categories

- Jaravel (2021) shows that inflation differences across income groups are larger when using more detailed item categories.
- Example: fresh fruit vs. canned fruit
- 1967 Handbook of Labor Statistics reports price indexes for a range of food items
- 1949 BLS report published price indexes for a range of other detailed categories, but only through 1948
- We match these indexes as best we can to expenditures reported in the 1935-36 expenditure survey

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More detailed item categories

- Food: 42 categories including various cuts of meat, fresh fruits and vegetables.
- Other detail: domestic service vs. cleaning supplies, cigars vs. cigarettes, salon visits vs. toiletries – 45 categories
- We are not able to get finer detail on:
 - Clothing: ICPSR did not record detailed expenditures
 - Reading/recreation: no price indexes except movies and newspapers
 - Household furniture, furnishing and equipment: expenditures on durable goods were so rare that our CEX sample is too small to accurately estimate differences in expenditures across groups
 - Cars: no BLS index for used car prices, only 3 indexes for specific manufacturers (Ford, Chevrolet, Plymouth)

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Inflation by education of husband (87 item categories)

	Inflation 1939-48 (annual rate)
8 years or less	5.93
9 to 11 years	5.94
12 years	5.79
13 to 15 years	5.89
16 years or more	5.86

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Inflation by family income (87 item categories)

	Inflation 1939-48 (annual rate)
Bottom quintile	5.88
Second quintile	5.88
Middle quintile	5.82
Fourth quintile	5.86
Top quintile	6.05

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Price of shelter for owner-occupants

- No BLS estimate of the price of shelter for owner-occupants prior to 1982.
- We estimate the change in owner costs using the 1935-36 microdata and the 1950 published tables.
 - Mortgage interest, repair/replacement costs, property taxes, insurance, etc.
- We calculate the increase in owner expenditures from 1936 to 1950 and adjust for the longer time period covered.
- We estimate that owner expenditures increased by 3.4% per year 1939-49.
 - Increase in rent was 1.9% per year.

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Inflation by education of husband

	Percent Owners	Baseline	Inflation Using Owner Expenditures
8 years or less	40.4	5.43	5.63
9 to 11 years	34.1	5.38	5.55
12 years	39.9	5.26	5.47
13 to 15 years	36.1	5.29	5.45
16 years or more	45.7	5.22	5.42

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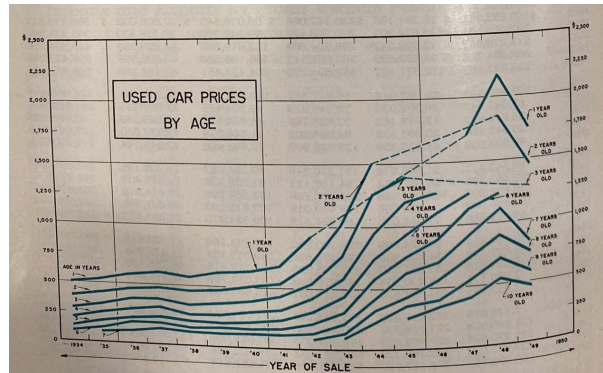
Inflation by family income

	Percent Owners	Baseline	Inflation Using Owner Expenditures
Bottom quintile	31.2	5.39	5.61
Second quintile	34.4	5.36	5.56
Middle quintile	40.8	5.33	5.53
Fourth quintile	43.0	5.34	5.53
Top quintile	49.3	5.29	5.46

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Automobile purchases

- Used car purchases more common than new car purchases for families with lower income, less education.



Source: Automobile Facts and Figures, 1950.

Age of Car	Estimated Change in Price
1	12%
2	12%
3	14%
7	25%

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Automobile purchases

- Change in retail price overestimates inflation because car quality improved over time.
- Assume that used car prices rose by 10% per year.
 - BLS price index for new cars rose by only 6.7% per year.
- Inflation gap between lowest and highest education group would widen from 0.22 to 0.28.

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Summary

- We find little difference in inflation across households by education, occupation or income.
 - Expenditure patterns were fairly similar across groups.
- Real wage inequality compressed by about the same amount as nominal wage inequality — the Great Compression was indeed “real.”

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Further work

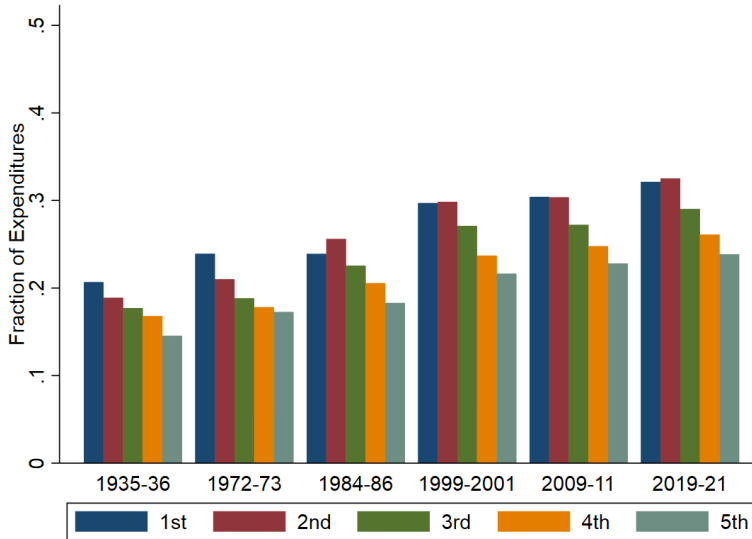
- Further refine estimates of inflation differences across groups:
 - Used car prices
 - Clothing expenditures
- Influence of price controls on inflation differences during mid-1940s.
- Evolution of spending shares and how differences across groups have changed over past 100 years.
 - Would provide insight into shifts in real income inequality over the long run.

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Thank you!

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Rent expenditure share by income group



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Inflation by education of husband

