

Farm Product Prices, Redistribution, and the Early U.S. Great Depression

ONLINE APPENDIX

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A Data appendix for Table 1

A.1 Prices Price data come from [U.S. Department of Agriculture \(1936\)](#) with the exception of tobacco price data which come from [Strauss and Bean \(1940\)](#), table 24, p. 69. We seasonally adjust these data by regressing the log price on monthly dummies, excluding the year 1933 because of the extreme price movements in spring 1933. For further details on the price sources, see [Hausman, Rhode, and Wieland \(2019\)](#), online appendix C.1. All sources and methods used for the prices in Table 1 are the same as those described there.

A.2 Production

- For wheat, corn, oats, cotton, tobacco, hay, potatoes, milk and chickens, farm product value, production, and trade data are from [U.S. Department of Agriculture \(1934\)](#) and [U.S. Department of Agriculture \(1936\)](#) as specified in appendix C.1 of [Hausman et al. \(2019\)](#).
- Cattle: 1929 farm product value is equal to that given for cattle and calves in [U.S. Department of Agriculture \(1931\)](#), table 371, p. 842 minus 1929 calf production times the 1929 calf producer price from [U.S. Department of Agriculture \(1936\)](#) table 307, p. 213. Production in 1929 is from [U.S. Department of Agriculture \(1931\)](#), table 370, pp. 840-841. Production in 1930 is from [U.S. Department of Agriculture \(1932\)](#), table 328, pp. 782-783. Trade data are for beef and beef products and are from [U.S. Department of Agriculture \(1933\)](#), table 320, p. 600.
- Hogs: Farm product value is from [U.S. Department of Agriculture \(1931\)](#), table 396, p. 860. Production in 1929 is from [U.S. Department of Agriculture \(1931\)](#), table 395, p. 859; production in 1930 is from [U.S. Department of Agriculture \(1932\)](#), table 347, p. 795. Trade data are for hog products and are from [U.S. Department of Agriculture \(1933\)](#), table 341, p. 792.
- Eggs: Sources are as specified in [Hausman et al. \(2019\)](#), except trade data which are from [U.S. Department of Agriculture \(1932\)](#), table 438, p. 859.

B Data appendix for Figure 3

The nominal price index for traded crops is equal to $\sum_j price_j \times weight_j$ for traded crops j , and the nominal price index for nontraded farm products is equal to $\sum_k price_k \times weight_k$ for nontraded farm products k . The indices shown in the figure are put in real terms by dividing by the nonseasonally adjusted CPI, FRED series CPIAUCNS (the CPI does not have obvious seasonality at this time).

For the prices of all products other than wool, the sources and method of seasonal adjustment are as detailed above (appendix A.1 with further details in Hausman et al. (2019), online appendix C.1). For wool, monthly prices are from U.S. Department of Agriculture (1936), table 347, p. 244, with seasonal adjustment done using data from January 1926 through December 1935, excluding 1933.

The weight for traded crop j is equal to $\frac{\text{farm product value}_j}{\text{all traded crop farm product value}}$ in 1929, and the weight for nontraded farm product k is equal to $\frac{\text{farm product value}_k}{\text{all nontraded farm product value}}$ in 1929. For milk and chickens we use the value sold rather than produced. Farm product value for cattle and hogs are as listed above (appendix A.2). All other farm product value data come from Haines, Fishback, and Rhode (2015).

C New registrations as a measure of car sales

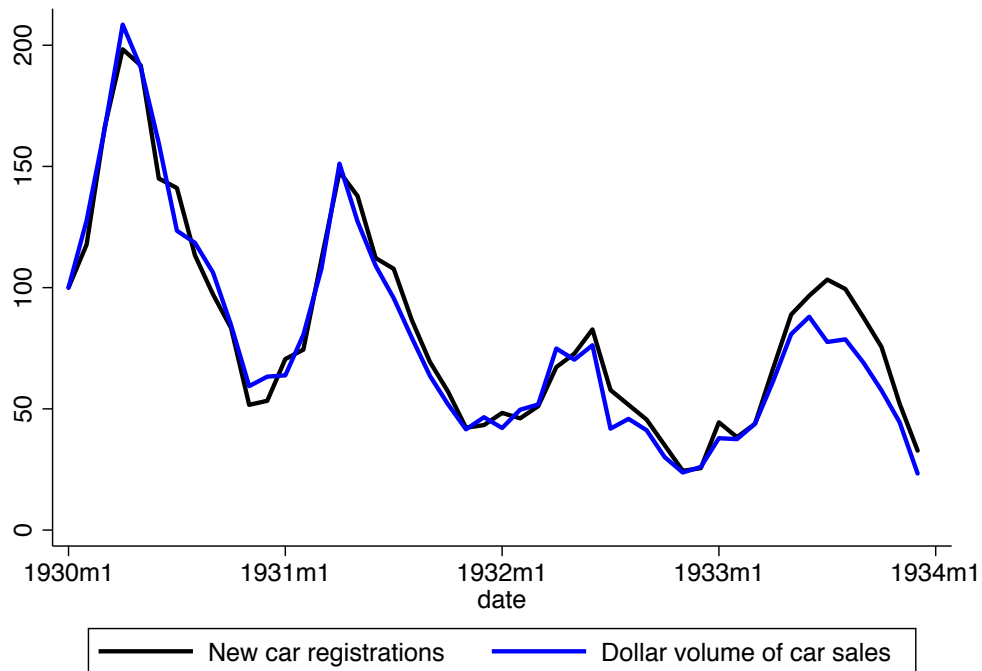
In the paper, we use new car registrations as a measure of new car sales. The U.S. Department of Commerce (1934) provides a useful discussion and data on the relationship between new registrations and unit sales. The Department of Commerce writes (pp. 16-17):

Registration figures have been available and in normal times they undoubtedly offer a rather accurate picture of the general trend in unit sales.

. . . [Sales] represent the number of cars actually sold each month, whereas the registration figures are unduly decreased or increased in certain months because of lax enforcement of licensing provisions and other factors, which allow the holding over of car sold in one month for registration in a later month when the cost of licensing will be lower. The months of June and July and December and January are especially affected by these factors.

While this statement raises concerns about measurement error from using new registrations as an indicator of sales, the available data suggest this error is quite small. The Department of Commerce ([U.S. Department of Commerce, 1934](#)) computed an index of the dollar volume of nationwide new car sales. The index begins in 1929, but actual (rather than imputed) data on unit sales begin only in 1930. Since the data are also unavailable by state, the series is of no use for our paper. Still, we can use it to see how well new car registrations approximate dollar sales during the Depression. Reassuringly, the answer is very well. Over the entire period 1930-33 and in 1930 alone, the correlation between month-over-month percentages in dollar sales and new registrations is roughly 0.88.¹ Figure C.1 confirms the close correspondence between the two series.

Figure C.1: Dollar volume of car sales and new registrations



Note: Both series are not seasonally adjusted and are indexed to 100 in January 1930. Sources: New car registrations, NBER macrohistory series m01109; dollar volume of sales index, [U.S. Department of Commerce \(1934\)](#).

D County car sales data source

We compile the data on car sales in Ohio as follows.

¹Nationwide new passenger car registrations are from NBER macrohistory series m01109.

Car sales in Jan. 1929: *Bulletin of Business Research*, 2/1929, table II, p. 6.
Car sales in Feb. 1929: *Bulletin of Business Research*, 3/1929, table II, p. 6.
Car sales in Mar. 1929: *Bulletin of Business Research*, 4/1929, table II, p. 6.
Car sales in Apr. 1929: *Bulletin of Business Research*, 5/1929, table II, p. 6.
Car sales in May 1929: *Bulletin of Business Research*, 6/1929, table II, p. 7.
Car sales in Jun. 1929: *Bulletin of Business Research*, 7/1929, table II, p. 6.
Car sales in Jul. 1929: *Bulletin of Business Research*, 8/1929, table II, p. 6.
Car sales in Aug. 1929: *Bulletin of Business Research*, 9/1929, table II, p. 6.
Car sales in Sep. 1929: *Bulletin of Business Research*, 10/1929, table II, p. 6.
Car sales in Oct. 1929: *Bulletin of Business Research*, 11/1929, table II, p. 6.
Car sales in Nov. 1929: *Bulletin of Business Research*, 12/1929, table II, p. 6.
Car sales in Jan. 1930: *Bulletin of Business Research*, 2/1930, table II, p. 6.
Car sales in Feb. 1930: *Bulletin of Business Research*, 3/1930, table II, p. 6.
Car sales in Mar. 1930: *Bulletin of Business Research*, 4/1930, table II, p. 6.
Car sales in Apr. 1930: *Bulletin of Business Research*, 5/1930, table II, p. 6.
Car sales in May 1930: *Bulletin of Business Research*, 6/1930, table II, p. 7.
Car sales in Jun. 1930: *Bulletin of Business Research*, 7/1930, table II, p. 6.
Car sales in Jul. 1930: *Bulletin of Business Research*, 8/1930, table II, p. 6.
Car sales in Aug. 1930: *Bulletin of Business Research*, 9/1930, table II, p. 6.
Car sales in Sep. 1930: *Bulletin of Business Research*, 10/1930, table III, p. 6.
Car sales in Oct. 1930: *Bulletin of Business Research*, 11/1930, table II, p. 7.
Car sales in Nov. 1930: *Bulletin of Business Research*, 12/1930, table II, p. 6.

Exceptions:

- Belmont county, Jul. 1929: No value is given for Belmont county in the 8/1929 *Bulletin of Business Research*. We infer the number of cars using: The number of cars in Belmont county in Aug. 1929 as given in *Bulletin of Business Research* 9/1929, table II p. 6, which equals 266, and the percent change in the number of cars in Belmont county from Jul. 1929 to Aug. 1929 as given in the *Bulletin of Business Research* 9/1929, table II p. 6 which equals 4 percent.

- Belmont county, Feb. 1930: No value is given for Belmont county in the 3/1930 *Bulletin of Business Research*. We infer the number of cars using: The number of cars in Belmont county in Mar. 1930 as given in the *Bulletin of Business Research* 4/1930, table II p. 6, which equals 147, and the percent change in the number of cars in Belmont county from Feb. 1930 to Mar. 1930 as given in the *Bulletin of Business Research* 4/1930, table II p. 6 which equals -7 percent.
- Defiance, Sep. 1929: No value is given for Defiance county in the 10/1929 *Bulletin of Business Research*. We infer the number of cars using: The number of cars in Defiance county in Oct. 1929 as given in the *Bulletin of Business Research* 11/1929, table II p. 6, which equals 69 and the percent change in the number of cars in Defiance county from Sep. 1929 to Oct. 1929 as given in the *Bulletin of Business Research* 11/1929, table II p. 6 which equals -27 percent.

E Appendix tables

Table E.1: Cross-state regressions, population weighted

	(1)	(2)	(3)	(4)	(5)	(6)
Right hand side variables:						
% pop. on farms 1930	-0.31*** (0.083)	-0.23** (0.094)	-0.30** (0.11)			
Crops sold p.c. 1929 (\$s)				-0.14*** (0.051)	-0.061 (0.037)	-0.078 (0.049)
Population 1930 (millions)		-0.079 (0.39)	-0.26 (0.43)		0.12 (0.35)	0.050 (0.37)
1928 car sales p.c. (1000s)		-0.39* (0.22)	-0.53** (0.25)		-0.23 (0.25)	-0.27 (0.26)
1930 drought			-3.18 (2.86)			-1.68 (2.99)
1929 drought			0.42 (5.28)			0.51 (5.75)
Region Fixed Effects	No	Yes	Yes	No	Yes	Yes
R^2	0.33	0.59	0.61	0.20	0.57	0.57
Observations	49	49	49	49	49	49

Notes: The dependent variable is the percent change in non-seasonally adjusted car sales from the 1929:Q2-Q3 average to the 1930:Q2-Q3 average. p.c. means per capita. Robust standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ Sources: New car sales - see text; population and percent of the population on farms - the 1930 Census as reported in [Haines and ICPSR \(2010\)](#); 1929 value of crops sold per capita - the 1940 Census as reported in [Haines et al. \(2015\)](#); 1928 car sales - *Automotive Industries*, 2/23/29, p. 271; drought dummies - National Climate Data Center. Region fixed effects are dummy variables for the four census regions - northeast, midwest, south, and west.

Table E.2: Cross-county regressions, population weighted

	(1)	(2)	(3)	(4)	(5)	(6)
Farm share 1930 (%)	-0.17 (0.10)		0.056 (0.083)			
Crop value sold p.c. 1929 (\$)		-0.22** (0.085)		0.0054 (0.069)		
Cotton, tobacco, cereals, wool p.c. 1929					-0.26** (0.12)	-0.19* (0.11)
Nontraded farm p.c. 1929					0.0044 (0.040)	0.059* (0.034)
Population 1930 (millions)			12.4*** (2.29)	11.3*** (1.94)		12.5*** (2.10)
1928 car sales p.c. (1000s)			-0.62*** (0.18)	-0.63*** (0.19)		-0.60*** (0.19)
R^2	0.09	0.15	0.54	0.53	0.15	0.55
Observations	49	49	49	49	49	49

Notes: The dependent variable is the percent change in non-seasonally adjusted auto sales from the 1929:Q2-Q3 average to the 1930:Q2-Q3 average. p.c. means per capita. While we observe monthly auto sales in 1929-30 in 50 counties, there are only 49 observations since 1928 car sales were not reported for Morgan county. Robust standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ Sources: New car registrations - see text; population and percent of the population on farms - the 1930 Census as reported in [Haines and ICPSR \(2010\)](#); 1929 value of crops sold per capita and farm product categories - the 1940 Census as reported in [Haines et al. \(2015\)](#); 1928 car sales - calculated from the *Industrial and Commercial Ohio Yearbook* (1930), table XVI, p. 104 which lists by county both 1929 car sales and the 1928-29 percent change in car sales.

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