AVOIDING DEFAULT: THE ROLE OF CREDIT IN THE CONSUMPTION COLLAPSE OF 1930*

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High consumer indebtedness threatens future consumption spending if default is expensive. Consumer spending collapsed in 1930, turning a minor recession into the Great Depression. Households were shouldering an unprecedented burden of installment debt. Down payments were large. Contracts were short. Equity in durable goods was therefore acquired quickly. Missed installment payments triggered repossession, reducing consumer wealth in 1930 because households lost all acquired equity. Cutting consumption was the only viable strategy in 1930 for avoiding default. Institutional changes lowered the cost of default by 1938. When recession began again, indebted households chose to default rather than reduce consumption.

I. INTRODUCTION

The parallels between the 1920s and the most recent decade are sometimes disquieting. Lengthy recoveries spurred in part by credit-financed booms in consumption characterize both periods. Soaring stock markets bolstered optimism. Federal Reserve authorities worry now, as in 1929, that unprecedentedly high levels of household indebtedness could lead to economic contraction [McNamee and Melcher 1997; Kubik 1996]. In 1930 their fears were realized: consumer spending dropped precipitously, turning a minor recession into the Great Depression.

Temin first called attention to the 1930 collapse of consumption. Even after accounting for the effects of wealth and income, he found that aggregate consumption fell much more in 1930 than in two other recession years, 1921 and 1938 [Temin 1976, pp. 71–72]. In his words, "the [1930] fall in consumption must be regarded as truly autonomous" [Temin 1976, p. 83].[1] Previous explanations of

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1. More recently Temin [1989, p. 43] noted that the "autonomous fall in consumption . . . is still an important part of the American story."

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the episode focus on the relative illiquidity of durable and semidurable goods. Mishkin [1978] argued that Great Depression era changes in household balance sheets caused a sharp decline in purchases of durable goods. Romer [1990] argued that the 1929 stock market crash heightened uncertainty and caused decreased purchases of irreversible durable and semidurable goods. Romer and Mishkin have no doubt explained part of the 1930 drop in consumption. But there is much more to the story.

The 1930 drop in consumption resulted from the unique combination of historically high consumer indebtedness and punitive default consequences. Down payments were large, and contract terms short, so equity was acquired quickly. If an installment payment was just 30 days late, the good being purchased could be and often was repossessed. The defaulting household was not compensated for the "surplus," the difference between the net resale value of the good and the remaining payments. Repossession reduced household wealth.

The collapse of consumption in 1930 came on the heels of a decade of virtual explosion in household use of installment credit. Authorities believed that "easy credit" was creating a generation of "deadbeats" who would default at the first sign of financial stress [Connecticut 1931, pp. 34–38; Phelps 1952, pp. 39–40]. Yet when financial stress hit in the 1930s, households did *not* default. The default rate on consumer credit was so low that the Census Bureau [1943, p. 798] later claimed ". . . consumer credit was a safer investment in 1933 than cash in banks . . . Consumers did not repudiate their debts en masse . . . but merely tightened their belts until they could pay what they owed and then buy more."

In earlier recessions, so few households had been debt-burdened that "tightening their belts" did not substantially move aggregate measures of the economy. In later recessions, default consequences were less costly, and many more households therefore chose to default: the 1937–1938 default rate was at an all-time high. But in 1930 indebted households avoided default. They did so by their only available means: reducing consumption spending.

II. The Rise of Installment Financing

The 1920s mark the crucial turning point in the history of consumer credit. Contemporaries noted that in the 1920s it first became common for merchants to assume that a customer was

TABLE I
RISING HOUSEHOLD INDEBTEDNESS, 1919–1939

	Consumer nonmortgage debt as a percentage of income (1)	Nominal consumer nonmortgage debt (Thousands $) (2)	Nominal installment debt (Thousands $) (3)
1919	4.6%	$2,918	$1,867
1920	4.7	3,304	2,114
1921	5.5	3,249	2,079
1922	5.9	3,469	2,220
1923	5.6	3,860	2,469
1924	5.9	4,159	2,648
1925	6.9	4,928	3,139
1926	7.2	5,510	3,531
1927	7.5	5,714	3,571
1928	8.7	6,567	4,129
1929	9.3	7,628	4,906
1930	9.3	6,821	4,299
1931	8.8	5,518	3,585
1932	8.5	4,085	2,632
1933	8.7	3,912	2,668
1934	8.5	4,389	3,062
1935	9.4	5,434	3,914
1936	10.3	6,788	4,937
1937	10.6	7,480	5,419
1938	10.9	7,047	5,081
1939	11.4	7,969	5,967

Sources. Column (1): Olney [1991, Table 4.1]. Column (2): Goldsmith [1955, Table D-4, column 1]. Column (3): Goldsmith [1955, Table D-4, sum of columns (2) through (9)].

buying on credit rather than with cash [Nugent 1939, p. 96; Allen 1931, pp. 139–140]. Outstanding nonmortgage consumer debt more than doubled in the 1920s, reaching a 1929 peak of $7.6 million—9.3 percent of income—that was not surpassed until 1939 [Goldsmith 1955, Table D-1].[2] See Table I. Today consumers' outstanding debt totals more than $1.2 trillion, 18 percent of personal income.

Installment buying accounted for much of the 1920s expansion in household credit use.[3] The installment plan featured a

2. When deflated by prices, the increase is slightly more pronounced due to minor declines in prices of major durable goods [Olney 1991, Table 4.1].

3. De Long and Summers [1986] asserted that increased availability of credit in the 1920s should have stabilized the economy by dampening fluctuations in output and income. Instead, the opposite happened. De Long and Summers' argument applies to short-term informal credit extended directly by a merchant.

signed and legally binding contract between a seller and a buyer. Legal ownership of the good being purchased on installments did not transfer until the contract was completed. Payment due dates were specified. The seller-creditor reserved the legal right to repossess "their" good if payments were late. Buyers were prohibited from reselling the good before the contract was completed without the approval of the titleholder, the seller [Ayres 1938]. For autos, state laws requiring registration of title with nascent Departments of Motor Vehicles provided the mechanism for enforcement. Prohibition of resale is an important point: households in the midst of an installment contract could not liquidate their durable goods to avoid default.

Finance charges on installment plans were considered a charge for the convenience of paying later and were therefore not subject to usury laws. Available evidence indicates that the effective rate of interest—which reflects the finance charge, assorted fees, and the difference between cash and time prices—was generally in the neighborhood of 30 to 40 percent but sometimes ranged as high as 100 percent for installment contracts [Olney 1991, Chapter 4].

Industry standards of the 1920s put down payments at 33 percent for new automobiles and 40 percent for used ones, with a contract length of twelve months [NAFC 1924]. Other durable goods had contract maturities of twelve to eighteen months and down payments of 10 to 25 percent. Down payments were reduced, and contract maturities lengthened in the early 1930s, slowing the rate at which equity was acquired [Olney 1991, pp. 113–114].

Because of the high down payments and short maturities, installment payments commanded a substantial part of indebted households' take-home pay. Auto prices were 20 to 60 percent of average annual disposable income, pianos cost about one-third of disposable income, and refrigerators and stoves were 5 to 10 percent of disposable income [Olney 1991, Tables 4.5 and 4.8]. With an effective interest rate of 33 percent, loan payments were 16 to 48 percent of monthly disposable income for cars, 32 percent for pianos, and 5 to 9 percent for appliances. Use of the installment plan declines with increasing income [Olney 1998, Table 7], so the burden of debt would be greater if we considered only those families most likely to use the installment plan.

Use of such merchant credit varies inversely with fluctuations in current income and provides the sort of consumption-smoothing they claim. But availability of merchant credit did not increase substantially in the 1920s; installment credit's availability did.

How many families used installment credit? Disaggregated evidence on use is from expenditure surveys. Twenty-two percent of over 12,000 lower and middle income urban families surveyed nationwide in 1918 and 1919 by the U. S. Bureau of Labor Statistics (BLS) used installment credit, mostly for purchases of furniture and appliances [Olney 1998, Table 1].

The propensity to use the installment plan increased over the 1920s. Over 41 percent of the 506 families of federal employees whom the BLS surveyed in 1928 bought a good on installments, purchasing furniture, clothing, radios, automobiles, pianos, and appliances [U. S. BLS, 1929b]. About 25 percent of over 60,000 families surveyed nationwide by the BLS in 1935–1936 used the installment plan. Of these families, about 60 percent were buying automobiles, and about one-fourth were buying refrigerators and other electrical appliances [Bernstein 1940, pp. 4 and 8].

Automobiles were at the center of the 1920s expansion of installment debt. Throughout the interwar years, 60 to 70 percent of cars were purchased on installments. But car sales themselves boomed in the 1920s. Just 5 percent of U. S. households bought a car on installments in 1919. Strong growth in installment sales began in 1923, hit a peak in 1929, fell off in 1932 and 1933, and then resumed a more moderate expansion. See Table II. In 1929 alone, nearly one-quarter of all American households purchased a car; 15 percent of households bought a car on installments, and another 9 percent bought with cash.

The extent of auto financing in 1929 is especially important. Because most auto contracts were twelve to eighteen months long, only installment contracts begun in 1929 or possibly late 1928 could affect consumption in 1930. Reports of new automobile installment contracts for two of the largest sales finance companies—General Motors Acceptance Corporation (GMAC) and Commercial Credit Company (CCC)—are recounted in Table II. The sharp peak in 1929 is evident. Assuming that the average contract was $550, together GMAC and CCC accepted around three million auto contracts in 1929, one for every ten households in the United States.

III. Default Rates in the Interwar Years

Spirits, spending, and indebtedness were all high in 1929. Most of the economy was enjoying the eighth year of a nearly uninterrupted post-1921 recovery. Durable goods purchases were

TABLE II
EXTENT OF INSTALLMENT FINANCING, 1919–1939

	Percentage of households		Percentage of new cars bought on installment	New contracts ($) (000's)	
	Buying any car	Buying car on installment		GMAC	CCC
1919	8.6	4.9	65	n.a.	$ 78,986
1920	9.7	5.4	62	n.a.	87,292
1921	7.4	4.3	64	n.a.	79,347
1922	11.3	6.6	64	n.a.	111,826
1923	17.0	10.3	65	$ 218,616	170,385
1924	16.5	10.6	70	253,649	162,790
1925	19.4	12.7	68	281,427	262,838
1926	18.8	12.2	64	631,544	254,075
1927	16.0	9.8	58	847,994	204,518
1928	19.7	11.8	58	977,089	265,884
1929	24.2	15.2	61	1,133,117	442,807
1930	17.4	11.0	61	911,492	330,824
1931	13.4	8.2	63	745,040	274,358
1932	8.2	4.1	55	412,527	141,641
1933	7.3	4.2	57	517,192	199,683
1934	9.6	5.4	54	790,568	377,959
1935	11.3	6.9	58	1,030,595	525,999
1936	15.4	9.2	61	1,394,036	789,508
1937	15.1	8.9	57	1,394,678	933,854
1938	9.5	5.4	52	918,573	524,346
1939	11.3	6.8	54	1,158,942	625,869

Sources. Auto sales and financing are derived from NAFC, *NAFC News* 65 (May 1933):4, NASFC, "Composite Experience, 1937," and NASFC, "Composite Experience, 1939." See Olney [1991, Table 4.3]. Dollar volume of auto financing is from 1940 *Annual Report* of Commercial Credit Company: 1927, 1929, 1937, and 1941 *Annual Reports* of General Motors Acceptance Corporation.

rising 8 percent annually in real terms. And by 1929, household indebtedness was at a postwar high.

A recession had begun in August 1929. But through 1929 and into early 1930, it continued to be as mild as the minor recessions of 1924 and 1927. Weekly hours were falling in most industries, but they had been doing so throughout the 1920s [Bernanke and Powell 1986]. Wage cuts were no more common in late 1929 than they had been in 1928.

In October 1929 the stock market crashed. But relatively few households were directly involved in the market, so there were few instances of direct loss of wealth. However, as Romer [1990] argues and Flacco and Parker [1992] demonstrate statistically, the crash did increase households' income uncertainty.

Reinforcing increased uncertainty were subsequent changes in layoffs and wages. Layoffs as a percentage of employment rose in the fall of 1929, were steady between January and June 1930, and then jumped in July 1930 [U. S. BLS 1931b, p. 138].[4] Beginning in July 1930, layoffs exceeded voluntary quits for the first time since March 1921 [U. S. BLS 1931a, pp. 133–139; U. S. BLS 1929a, pp. 62–65]. Summer was a time when layoffs traditionally fell, so the sharp rise experienced in July 1930 must have been especially alarming.

Wage cuts also accelerated in mid-1930. In late 1929 and early winter 1930, somewhat more firms cut wages than had been the case earlier in 1929, but still more workers received wage increases than wage cuts each month. This situation first changed in March 1930: only 3 firms reported wage increases and only for 5 to 10 percent of their workers; whereas 31 firms reported cutting wages, and these cuts affected 45 percent of their workers. A moderate mix of wage increases and decreases continued until June 1930, when only 7 firms increased wages, but 117 firms cut the wages of over 20,000 employees. Then in July 1930 no firms reported raising wages, but 133 firms reported cutting wages of nearly 25,000 people, 86 percent of the workers in those firms.[5] The depression had begun in earnest.

Many pundits blamed the easy credit of the 1920s for the turn of events and issued more than a few "I told you so's" as they watched what they supposed was the natural collapse of an economy based on profligacy and greed. Soaring default rates and the failure of the sales finance industry were widely anticipated.

The pundits were wrong. Practically the only financial institutions to come through the 1930s unscathed were the sales finance companies. Loss rates were 20 percent on merchandise loans, 33 to 50 percent on real estate loans, and 75 percent on stocks and bonds, but the loss rate on installment credit was 1 to 2 percent [U. S. Census 1943, p. 799].

Despite the layoffs, the wage cuts, and the unprecedented

4. Caution must be exercised in using these data, since the base decreases each month in which net turnover is negative. A constant number of workers laid off, therefore, would create an increase in the layoff rate. Even adjusting for this factor leaves a hefty jump in the layoff rate in July 1930, however.

5. From monthly reports of voluntary establishment surveys of several thousand firms, listed in issues of the *Monthly Labor Review,* 1924–1935. The numbers should be assessed relative to those in other months and not relative to the total population. The sample is not representative of all firms and all workers, but the noted trends are so dramatic that their general outlines should not be dismissed. Mitchell [1985] also analyzes these data.

prevalence of installment credit use, families with installment debt were avoiding default. The repossession rate, as indicated in Table III, was 5.4 percent in 1930, only somewhat higher than the 4.2 percent rate in 1929, and far below the 1931 rate of 8.5 percent and 1932 rate of 10.4 percent.

Nor were repossession rates in 1930 artificially low. Families were keeping up with their installment payments. Well below 1 percent of auto contracts held by CCC in 1930 were 60 days or more past due, a lower percentage than had been past due in 1925, 1926, or 1927. Refinancing existing contracts also appears to have been uncommon in 1930, although here we are forced to guess: before 1931 the company did not report the value of notes extended or refinanced. See Table III.

The contrast with the 1937–1938 recession is stark. The repossession rate hit its interwar peak of 15.1 percent in 1938. Families that were not defaulting were rescheduling payments: twice as many notes were refinanced in 1938 as in 1937. The explanation of the differences between 1929–1932 and 1937–1938 lies in the evolution of default consequences.

TABLE III
DEFAULTS ON AUTOMOBILE CONTRACTS, 1925–1939

	Percentage of cars repossessed (national average)			Commercial Credit Company	
	New cars	Used cars	All cars	Percentage of notes 60 days or more past due	Percentage of notes extended or refinanced
1925	2.1	3.6	—	0.48%	n.a.
1926	2.4	4.7	—	0.45	n.a.
1927	2.9	5.3	—	0.20	n.a.
1928	2.9	5.6	4.1	0.11	n.a.
1929	3.0	5.6	4.2	0.15	n.a.
1930	3.7	6.9	5.4	0.18	n.a.
1931	4.5	11.4	8.5	0.43	1.43%
1932	5.7	13.1	10.4	0.10	3.29
1933	2.8	7.8	5.7	0.03	0.89
1934	2.9	7.2	5.3	0.03	0.82
1935	2.7	10.7	7.3	0.04	0.86
1936	2.2	7.5	5.1	0.04	0.82
1937	4.1	13.2	9.4	0.04	0.90
1938	6.3	19.2	15.1	0.05	1.92
1939	2.7	10.1	7.5	0.04	2.90

Sources. National averages are from National Association of Sales Finance Companies [1939]. CCC data are from *Annual Reports,* Commercial Credit Company, 1925–1940.

IV. Consequences of Default

Defaulting on an installment contract is a choice. The decision to default depends upon the cost of default relative to the costs of avoiding default. The cost of default depends, in turn, upon the legal consequences of default—is the surplus returned?—and if the surplus is not returned, upon the rate at which equity is acquired.

In 1930 default on an installment contract was costly. Households purchasing durable goods on time acquired equity in the goods as they paid off the contract. Repossession without return of the surplus was the norm in the 1920s and early 1930s. More wealth was lost through default, therefore, than through liquidating other assets or acquiring additional liabilities if income was insufficient to cover planned outlays.[6]

The consequences of default had been established in earlier decades when the very use of credit was a signal to creditors of high default risk. Before the 1920s, prudent families would not borrow to buy consumer goods; those families that did buy on installments apparently did so with a sense of shame [Phelps 1952, pp. 39–40; Hardy 1938, pp. 127–129]. From the creditor's perspective (but expressed in modern terms), both adverse selection and moral hazard risk were quite high. The penalties imposed upon default were therefore harsh.

Attitudes toward consumer credit changed swiftly over the course of the 1920s. "Prudence" came to be defined as the savvy buyer who took advantage of "liberal" credit terms by buying on installments. Yet the default consequences evolved more slowly.

Only three states passed legislation covering consumer installment contracts before the 1940s [Curran 1965, p. 2]. Case law, not statute law, therefore governed installment contracts. From 1933 to 1938, changes in the consequences of default occurred somewhat haphazardly: courts in several states deemed the consequences of default unnecessarily harsh, most then requiring the return of any surplus [Griffin and Greene 1936, p. 216]. In 1938 a decision at the federal level changed the legal landscape nationwide: in a consent decree entered into by Chrysler and Ford, return of the surplus following default and repossession was required of all sales finance companies affiliated with these two

6. Before New Deal legislation, home mortgages were typically balloon-style. Default on a home mortgage therefore often entailed little loss because home owners acquired very little equity as they made mortgage payments.

manufacturers [Haberman 1938]. From coast to coast, the consequences of default had thus been reduced.

V. Avoiding Default

Borrowers face the possibility of default when expected income falls or expected expenses rise. Tales of layoffs in town could lead to actions to avoid default as could a perception that wage cuts or hours reductions were increasingly likely. What means of avoiding default were available? In theory, families could reduce assets, acquire liabilities, increase income, or decrease consumption. But in 1930 only one option was viable for most families: reducing current consumption.

Selling the good and using the proceeds to pay off the contract was ruled out by most installment contracts [Ayres 1938]. Liquidating other assets would have been difficult both because aggregate saving rates had fallen in the 1920s and because installment debt was used most often by young households who had little or no accumulated savings. Borrowing from others (family, friends, financial institutions) required finding others with funds to lend: an unlikely prospect because economic distress was experienced nearly across the board and not just in isolated families. Extending the contract's length was uncommon. Increasing the family's wage income was problematic because aggregate employment was declining, hours were falling, wages were being cut, and the young households most likely to use installment debt were unlikely to contain teenagers who could be sent out to look for work.

Two possibilities remain. Families could try to increase nonwage income. In the interwar years, even urban households sold homegrown vegetables, took in laundry or sewing, or housed boarders or lodgers—all forms of nonwage income. But the amount of income these activities generated was minor.

Decreasing consumption and setting aside funds with which to make future installment payments was the only other option. At least one contemporary analyst suggested that most families chose this option. With regard to the 1920 recession but, he argued, with applicability to the Great Depression, Ayres [1930] noted that when layoffs began in 1920: "Other employees, observing these dismissals, began to feel nervous. They may not have sensed the fact that a general depression was coming, but many began to doubt the security of their own jobs, and abstained from costly purchases, while those who felt secure in their positions or

had other sources of income made no change in their buying habits." Those with debt, he said, made every effort to pay up "rather than lose what they had already put in."

VI. The Drop in Consumption

Avoiding default required decreasing nondurable consumption. Yet Romer [1990] asserted that nondurable consumption increased in 1930, as predicted by her model. Unfortunately, her evidence—a monthly series of sales at grocery store chains ending December 1929—is misleading. Chain stores were likely to show an increase in sales in 1929 even if total expenditure for food was falling because customers were switching from independent to chain groceries in the late 1920s [Lebhar 1959; Tedlow 1990].

In fact, not only food but most components of consumption did decline in 1930, as seen in Table IV. Food and tobacco spending fell in real terms by 2.2 percent. Declines in personal business (especially brokerage charges), transportation, household operation, clothing, and food together accounted for nearly 97 percent of the change in total consumption expenditure. Note the contrasts with 1921 and 1938. In 1921 clothing and personal care expendi-

TABLE IV
Real Consumption Spending in Three Recessions

	1920–1921		1929–1930		1937–1938	
	Percentage change	Contribution to change in total consumption	Percentage change	Contribution to change in total consumption	Percentage change	Contribution to change in total consumption
Total consumption	*−4.6%*	*100.0%*	*−6.2%*	*100.0%*	*−2.2%*	*100.0%*
Food & tobacco	−7.5	50.4	−2.2	9.6	2.5	−35.5
Clothing & shoes	0.5	−1.0	−9.8	15.1	0.4	−1.6
Personal care	4.7	−1.2	−4.6	1.2	−4.6	3.2
Housing	−1.2	2.6	−1.2	1.7	1.5	−6.5
Household operation	−3.7	10.8	−7.1	15.7	−5.8	35.5
Medical care	0.0	−0.0	−0.9	0.9	−0.9	2.4
Personal business	−5.7	16.4	−15.3	33.0	−6.8	32.3
Transportation	−4.9	8.3	−14.5	23.5	−14.4	63.7
Recreation	−9.3	10.2	−3.9	3.2	−4.4	9.7
Education & research	1.5	−0.5	4.0	−0.9	3.8	−2.4
Religion & welfare	−6.8	3.6	5.9	−1.7	6.0	−4.0

Source. Lebergott [1996, Table A2], U. S. Bureau of Economic Analysis [1991]. The 1930 drop in consumption spending is 4.6 percent when brokerage charges are excluded.

tures rose slightly, and the drop in food expenditure alone accounted for 50 percent of the drop in consumption. In 1938 food and clothing expenditures rose, partially offsetting steep declines in expenditures for transportation, household operation, and personal business.

Temin's claim of an autonomous drop in consumption in 1930 stemmed from regression analysis of annual consumption data for the interwar period. With consumption determined by disposable income and wealth, the residual—actual minus predicted consumption—was large and negative in 1930 but large and positive in the second year of the two other interwar recessions, 1921 and 1938.[7] The results are replicated in column (1) of Table V.

The consumption data used by Temin showed increased consumption 1919 to 1920 and 1920 to 1921. Revised consumption data from Lebergott [1996] show the opposite trend; consumption falls in 1920 and again in 1921.[8] The revised data alter the specifics of Temin's analysis but not his essential story. Regressing real consumption on just disposable income and wealth produces a large, negative residual in 1930 but a large, positive residual in 1938 and essentially no residual in 1921.[9] The same pattern holds for real expenditure for nondurable goods. See columns (2) and (3) of Table V. The question remains: why is the first year of the 1929–1933 downturn so different from the first year of the two neighboring recessions?

The answer: debt. Temin's autonomous drop in consumption essentially disappears when a role for debt is allowed. The results are in column (4) of Table V. When default is expensive, 1919–1932, nondurable consumption in year t decreases with increased installment debt in year $t - 1$. When default is not expensive, 1938–1941, nondurable consumption increases with increased installment debt in the previous year. Including a direct measure of the cost of default is not possible because of the state level

7. Mayer [1978] pointed out that including 1919 in the sample altered the regression results and that the errors in Temin's regressions were seriously autocorrelated. Olney [1989] later demonstrated that Temin's substantive point remained valid regardless of the time period or estimation method employed.

8. Lebergott's revision is attributed to the use of a new residential construction deflator for estimating the value of owner-occupied housing services. Temin's data were based on the Kuznets-Kendrick data which relied on a construction cost series. Lebergott used instead the BLS price index for rents, thereby providing consistency with the BEA's post-1929 consumption estimates [Lebergott 1996, pp. 81–82, 125].

9. The result is unchanged by choice of time period, 1919–1941 or 1920–1941, and by estimation method, ordinary least squares or maximum likelihood estimator correcting for autocorrelated errors.

TABLE V
ANALYSIS OF CONSUMPTION SPENDING, 1919–1941
(Standard Errors Are in Parentheses.)

	Temin's total consumption (1982 $)	Lebergott's total consumption (1987 $)	Nondurable goods (1987 $)	
Dependent variable	(1)	(2)	(3)	(4)
Constant	22.978	12.687	−31.021	43.589*
	(21.250)	(15.276)	(19.549)	(10.274)
Real disposable income	0.704*	0.763*	0.426*	0.181*
	(0.067)	(0.048)	(0.062)	(0.030)
Real wealth	0.037*	0.061*	0.029*	0.043*
	(0.011)	(0.008)	(0.010)	(0.007)
Lagged debt, 1919–1932				−0.905†
				(0.774)
Lagged debt, 1933				−1.659†
				(0.979)
Lagged debt, 1934				−0.411†
				(0.874)
Lagged debt, 1935				−0.253†
				(0.801)
Lagged debt, 1936				0.377†
				(0.661)
Lagged debt, 1937				0.626†
				(0.533)
Lagged debt, 1938–1941				1.367*
				(0.449)
Durbin-Watson	1.196	1.737	0.585	1.489
Adjusted R^2	0.942	0.979	0.888	0.990
Residuals (actual − fitted expenditure):				
1921	22.347	−1.222	−0.434	−3.185
1930	−8.607	−13.744	−17.994	−5.704
1938	15.085	21.107	25.498	−1.712

Sources. Temin's consumption data are from Temin [1976]. Lebergott's consumption data and nondurable consumption data are from Lebergott [1996]. Real disposable income and real wealth are from Olney [1991, Appendix B]. Nominal installment debt is from Table I, deflated by index of prices of major durable goods from Olney [1991, Table A.8].

Estimated using TSP 4.4. *Coefficient is statistically significant at 99 percent level. †Coefficient is different from that for lagged debt, 1938–1941, with statistical significance of at least 99 percent.

variation in court rulings and legislation governing installment financing; the gradual decrease in default costs between 1933 and 1937 is reflected in the year-to-year increases in the responsiveness of nondurable consumption to lagged debt. Inclusion of lagged debt eliminates the problem of autocorrelated errors (the Durbin-Watson increases from 0.585 to 1.489), indicating the

TABLE VI
PERCENTAGE DECREASE IN CONSUMPTION WHEN A 10 PERCENT DECREASE IN INCOME IS ANTICIPATED
(INITIAL INCOME = $100; SAVING = 3 PERCENT OF INCOME; INSTALLMENT PAYMENT = $30; INITIAL CONSUMPTION = $67)

Number of remaining payments	Income drop anticipated in two months				Income drop anticipated in one month			
	2	6	10	14	2	6	10	14
Revised total income to end of contract	$200.00	560.00	920.00	1280.00	190.00	550.00	910.00	1270.00
Revised monthly consumption	$ 67.00	60.53	59.24	58.69	62.15	58.92	58.27	57.99
Percentage decrease in consumption	0%	9.7	11.6	12.4	7.2	12.1	13.0	13.4

Source. Based on author's estimates. Assumes that the household wishes to smooth consumption over the life of the installment contract while maintaining a 3 percent saving rate and completing all scheduled installment payments. Planned consumption is revised at the time income expectations change. For example, if a 10 percent drop in income is anticipated in one month and fourteen months remain on the installment contract (last column), total income to the end of the contract will now be $1270 ($100 \times 1 + 90 \times 13$), total installment payments will be $420 ($30 \times 14$), saving will be $38.10 (3 percent of $1270), and therefore total consumption to the end of the contract will be $811.90. At $57.99 per month, this is a drop of 13.4 percent from the planned level of consumption, $67.00 per month, had there been no anticipated drop in income.

model with only income and wealth as independent variables was indeed misspecified. And rather than a large negative residual in 1930 and large positive residual in 1938, the regressions that include debt yield residuals that are small and negative in all three years, 1921, 1930, and 1938.

An exercise further indicates the role of avoiding default in explaining the 1930 drop in consumption. A consumption-smoothing household with take-home pay of $100 per month, loan payment of $30 per month, and 3 percent saving rate would have consumption of $67 per month. Suppose that a 10 percent wage cut is anticipated.[10] To smooth consumption over the life of the contract requires a decrease in consumption of 10 to 13 percent as demonstrated in Table VI. For example, if six months remain on the contract and a 10 percent income cut is expected in two months, the family needs to cut consumption by 9.7 percent. If the

10. An expected cut of 10 percent would be consistent with what others were experiencing. See Mitchell [1985].

income cut is expected in just one month, a 12.1 percent drop in consumption is required.[11]

How much of a drop in aggregate consumption will avoiding default generate? Fifteen percent of families purchased a car on installments in 1929. Suppose that each such family fears a 10 percent wage cut one month hence, with six months remaining on an installment contract. Suppose that the other 85 percent of families maintain their consumption. If 15 percent of families cut consumption by 12 percent and we assume that these families originally undertook 15 percent of aggregate consumption, then aggregate consumption will fall by 1.8 percent. If instead we use the more common estimate that 25 percent of families were using installment credit, their fear of a wage cut will lead to a fall in aggregate consumption of 3.0 percent. Temin [1976, p. 83] estimated that the autonomous decline in aggregate consumption in 1930 was 3.8 percent of aggregate consumption. Fear of default among installment buyers accounts for the bulk of Temin's autonomous drop in consumption.

VII. Conclusion

The October 1929 stock market crash heightened income uncertainty. Wage cuts, layoffs, and hours reduction early in 1930 lowered expected income. Nevertheless, the vast majority of auto and other installment contracts were completed as scheduled because default would have triggered wealth-reducing repossession. In order to avoid default, indebted families reduced consumption in nearly all spending categories.

Again in 1938, unemployment rose, and income fell. But this time, the repossession rate reached its prewar high. By 1938 it was cheaper to default. Few avoided doing so.

Whether high household indebtedness will lead to a collapse of consumption when expectations change depends upon the consequences of default. Contract provisions making default expensive may protect the financial institutions. But the strate-

11. The rate of decline in consumption is greater than would be predicted in a simple consumption-smoothing model with a fixed saving rate. For example, over a six-month period with a 10 percent cut in income expected in two months, in the absence of fixed loan payments consumption would fall from $97.00 to $90.53 per month, or by 6.7 percent rather than 9.7 percent. If the drop were anticipated in just one month, a simple consumption-smoothing model applied to a six-month horizon would predict a drop in consumption of 8.3 percent rather than 12.1 percent.

gies households pursue to avoid expensive default can harm those whose livelihoods depend upon the consumer goods industries. Policy makers who want to avoid another consumption collapse similar to that of 1930 should focus their attention on the consequences of default. Avoiding default can do more harm than good.

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