

The Economics of Consumer Credit

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editors

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The Economics of Consumer Credit Demand and Supply

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Credit markets are the subject of extensive research and intense policy debates, and of courses and textbooks (such as Freixas and Rochet 1997). Attention, however, is mostly focused on credit extended by banks and other market agents to firms and producers. Households are typically viewed as suppliers of funds in the financial markets, and academic research and policy discussions focus on their saving and portfolio choices (Poterba 1994; Guiso, Haliassos, and Jappelli 2001, 2003). When indebtedness does attract interest from academic and policy-oriented observers, much of the relevant research and discussion does not adopt an economic perspective. Sociological studies—such as Sullivan, Warren, and Westbrook (2000) and Manning (2000)—tend to reproach households for acquiring so much debt and policymakers for allowing them to do so, and throughout history, social perceptions of personal credit have been very mixed (Gelpi and Julien-Labruyere 2000; Calder 1999).

While borrowing and repayment are far from problem-free, opportunities to borrow can enhance economic welfare by allowing smoother consumption paths over time. Economic progress has been associated with the expansion of credit markets alongside all other markets, and a growing body of economic research fruitfully studies the large amount of information provided by cross-country differences and by time-series developments in the structure and regulation of consumer credit. Households' access to credit is more limited in Continental Europe than in the United States, but the formal consumer credit industry has been developing rapidly in all countries, and is the object of extensive policy debate. Privacy rules and the regulation of contractual responsibilities bear importantly on the functioning of consumer credit markets and are an important political concern in all countries, as are financial stability issues and the possible so-called overindebtedness of

some segments of the population. In the latter respects, the policy debate is especially vibrant in the United States, and regulatory policy issues in the credit market are very prominent in Europe, where economic and monetary union may lead the credit industry to develop along lines previously followed in the United States and, more recently, in the United Kingdom. European Union authorities are in the process of actively exploring opportunities for regulation or deregulation of consumer credit relationships within and across borders, and European households' portfolios may, sooner or later, mirror the United States not only in the spread of equity on the asset side (studied by Guiso, Haliassos, and Jappelli 2003) but also in the pervasiveness of debt on the liabilities side.

This volume covers these and other theoretical, empirical, and policy aspects of a very interesting research field. It focuses specifically on consumer debt and adopts an international comparative approach, with particular attention to policy issues. In this introductory chapter, we briefly outline key aspects of consumer credit demand and supply, highlighting relationships between aspects of the following chapters to each other and to broader issues left out of the volume's scope.

Because it appears to be poorly understood by many contributions to the policy debate, the economic approach to household borrowing deserves to be covered in some detail here. Section 1.1 reviews theoretical and empirical contributions that interpret indebtedness as an optimal, possibly constrained household strategy. It also sketches formal relationships between consumption dynamics and saving or borrowing decisions, in order to acquaint readers with notions and terminology that may be unfamiliar to them but are essential to the volume's chapters. In less formal detail, and focusing especially on features that differentiate consumer credit markets from the producer credit banking relationships that may be more familiar to most readers, section 1.2 proceeds to discuss issues arising on the supply side of the consumer credit market, and sections 1.3 and 1.4 review the implications and treatment of repayment difficulties and imperfect information in the consumer credit market.

1.1 The Economics of Consumer Credit Demand

Some of the popular discussion of household debt levels is conducted in a tone of moral disapproval. Household borrowing, however, can be just as sensible as saving. To see this, it suffices to consider how

dismal consumption patterns would be if individuals had to consume their earnings, with no access to assets and liabilities. The life-cycle perspective on household finances (Modigliani and Brumberg 1954) emphasizes savings for old age as the main implication of consumption-smoothing behavior. But while labor income certainly declines in old age, expectations of rising labor incomes can justify borrowing for young individuals. And the expenditure requirements of durable goods, especially at the time of household formation, can very well exceed labor income and accumulated assets in the early stages of an individual's life.

Borrowing in order to finance a more desirable consumption pattern or to finance housing purchases can be optimal from the economic point of view, and is perfectly normal nowadays. In earlier times, conversely, indebtedness was often frowned upon. From the economic point of view, a negative attitude toward indebtedness could be justified by market failure. In particular, poor repayment mechanisms could indeed make it unadvisable to incur debt. Before 1600, few English landowners mortgaged their land or property because if any scheduled repayment was missed the entire mortgaged property was forfeited regardless of the outstanding debt, and repayment entailed collecting gold and silver bullion and transporting it by cart under guard to London (Stone 1965). A view of borrowing as foolhardy behavior or evidence of moral desuetude could be justified when bad weather or robbers could easily mean a payment was missed, but a large increase in the use of mortgages unsurprisingly occurred when, in the 1620s, chancery reduced the penalty for missed payments.

Consumer credit today is much better organized, but it remains fascinatingly complex and interesting to study the determinants of household borrowing. In this volume, several chapters study the use of credit markets by households and their debt portfolios. Chapter 2 compares levels of housing and non-housing debt in different countries and the evolution of these debts over time, while chapter 3 extensively reviews and contrasts debt levels among different population groups in several different countries. Chapter 3 also reviews the many studies that estimate the proportion of constrained households, the differences across demographic groups in both the United States and Italy, and how much more such households wish to borrow.

Three of the following chapters illustrate general insights by focusing on single-country case studies and reporting relevant comparative indicators for other countries. Chapter 4 discusses the role of history

and regulation in shaping consumer credit differences and dynamics in Italy, a country featuring substantial regional heterogeneity and particularly sharp regulatory developments. Chapter 5 casts light on the role of housing expenditure (the main durable good that most households own) in the cyclical pattern of borrowing and the other factors that shape borrowing decisions of households across time. It does so by analyzing macroeconomic and microeconomic evidence from the United Kingdom, a country featuring very pronounced and regionally heterogeneous house prices dynamics. Chapter 6 investigates the use of credit cards by U.S. consumers, a country where their use is particularly prevalent, and reviews some of the puzzles that are posed by the failure of many households to repay in full the debts that they accumulate each month.

In the remainder of this section, we offer a review of theoretical insights and previous literature, aiming at allowing readers to appreciate the following chapter's contribution in the context of a broader literature and set of issues.

1.1.1 Modeling Consumer Behavior

The modern economic model of consumer behavior is based on substantive and technical insights reviewed by Deaton (1992) and Attanasio (1999) and briefly summarized in what follows. We include some mathematical notation for the benefit of readers who are familiar with optimization techniques in general but not in the particular context of this volume. The gist of this and the other chapters' arguments, however, may also be appreciated without explicit formalization.

According to the Permanent Income Hypothesis, the difference between income and consumption (hence savings, or borrowing) is determined by forward-looking considerations in the presence of randomness of future income—that is, households optimally choose their level of consumption in each period, subject to an intertemporal budget constraint, in order to control its volatility.

The household's problem is to choose consumption c in each period so that utility is maximized subject to the intertemporal budget constraint. The consumption stream is chosen so as to maximize lifetime utility, a discounted sum of period utility functions $u(\cdot)$ in the form

$$\max E_t \sum_{j=0}^T \beta^j u(c_{t+j}), \quad (1)$$

where T is the (possibly infinite) individual planning horizon, E_t denotes household expectations conditional on information available at t , and $\beta = 1/(1 + \delta)$ is the household's discount factor where δ is the subjective discount rate. Maximization of (1) is subject to

$$A_{t+1} = (1 + r_{t+1})(A_t + y_t - c_t), \quad (2)$$

where A is the level of assets (or liabilities), labor income at time t is denoted y_t , and the interest rate determined in the credit market is the same r_t on assets and liabilities. This is an asset evolution equation, stating that assets in any period must equal assets in the previous period plus income (labor income and the return on assets) less consumption in that period.

The optimal solution of this problem satisfies Euler equations in the form

$$u'(c_t) = E_t u'(c_{t+1})[(1 + r_{t+1})/(1 + \delta)], \quad (3)$$

where marginal utility $u'()$ is a decreasing function of consumption if consumption fluctuations are welfare-decreasing. Thus, optimization implies that marginal utility at time $t + 1$ is uniquely determined by tastes and by the interest rate, and is unrelated to anything that is predictable (and does not affect tastes) at time t or earlier, such as current and past income.

If marginal utility is (approximately) linear in consumption, consumption growth depends on the relative magnitudes of r and δ , but changes in consumption from period to period are independent of predictable changes in income, which are smoothed out by access to the credit market. Linearity of marginal utility makes it possible to combine the optimality condition and the intertemporal budget constraint to obtain a relationship among saving, income, and consumption,

$$s_t = \frac{rA_t}{1 + r_t} + y_t - c_t \quad (4)$$

and between savings and the evolution of income over time,

$$s_t = - \sum_{j=0}^{\infty} (1 + r)^{-j} E_t (y_{t+j} - y_{t+j-1}). \quad (5)$$

When the present value of income is expected to increase, it is optimal for savings to be negative: the household will run down its assets, or

borrow if assets are not available, when future income is expected to be higher, for example, because the householder lost his job but expects to find another one soon. Conversely, the household will save if it predicts lower income in the future, for instance, in retirement. Lending and borrowing make it possible to redistribute spending from periods in the life cycle in which income is high to periods in which it is low. Earnings are typically hump-shaped: lower early in life and also later in life, when people fully or partially withdraw from the labor market, than in prime age. Hence, this model predicts that borrowing should be higher for young households, and that households in late middle age should be saving for their retirement. Moreover, households expecting their income to grow more quickly (college educated rather than manual workers) should borrow relatively more when they are young.

1.1.2 Extensions of the Basic Model

The model just outlined is, of course, much too simple to represent reality, and its implications are often rejected by empirical evidence. It can however be extended and made more realistic in various important directions.

1.1.2.1 Taste-Shifters and Uncertainty about the Future

The basic model's representation of individual consumption behavior is often rejected by microeconomic survey data, in that consumption is typically found to react to predictable changes in income. As discussed in Attanasio 1999 and its references, the fit of the model can be vastly improved by a more flexible specification of consumption's utility-generating role. While in equation (1), utility depends only on consumption flows, it is realistic to allow utility to depend on "taste-shifters" such as household's size and the demographic characteristics of its members. Elderly individuals may be less demanding as regards the quantity and quality of food consumption, and the quantity and composition of desired consumption by households with young children are obviously different from those of households whose head is older or younger. If consumption needs are higher in middle age than when the head of the household is young and single, or in old age when the children have left home, optimality calls for less borrowing by young households and less savings by middle-aged ones, and the model predicts closer tracking of income by consumption over the life cycle.

When discussing the basic model's predictions, we focused on the implications of a linear relationship between marginal utility and the level of consumption. Linearity makes it simple to characterize optimal behavior, but this is because it implies "certainty equivalence": only expected values of future income and consumption matter for that behavior. In reality, of course, uncertainty around expected values can play an important role in determining consumption, savings, and borrowing. Formally, if marginal utility of consumption is convex rather than linear, then an increase in consumption when consumption is low is valued more highly than the same increase when consumption is high. It is then optimal to self-insure and buffer the impact of income fluctuations on consumption by building a "precautionary" stock of wealth, to be decumulated upon the realization of negative shocks. This behavior implies more savings and less borrowing. Quite intuitively, if a household considers borrowing in the current period but fears bad news (e.g., because a promotion is expected but may not materialize, or unemployment duration is very uncertain), it will want to borrow less when the impact of repayment on marginal utility is stronger at low consumption levels than in the "certainty-equivalent" linear marginal utility case.

In general, the amounts borrowed may therefore depend importantly on uncertainty as well as on the relationship between households' impatience and lifetime income patterns. Expanding the basic model to account for the role of uncertainty makes it possible to explain why young households, for instance, borrow less than one might expect, and why individuals in risky occupations (such as the self-employed) may wish to borrow less than those in occupations with highly reliable income streams (such as, in many countries, those in the public sector). Theoretical extensions are relevant when they explain observed phenomena, and precautionary behavior can help interpret these and other cross-sectional differences, discussed and documented in the literature as well as in the chapters in this volume, among borrowing patterns across individuals within a country.

1.1.2.2 Restrictions of the Level of Borrowing

Other aspects of the evidence reviewed by chapters 2 and 3 of this volume, however, are not easy to explain in terms of uncertainty. In particular, it is hard to invoke precautionary behavior in order to explain recent increasing trends in debt levels, because labor-market deregulation and technological trends have, if anything, increased the

variance of labor income shocks (the implications of this for consumption inequality and volatility in the United States are studied by Krueger and Perri 2004; see also the references therein). To interpret these aspects and the sizable differences in the borrowing behavior of similar individuals living in different countries and periods, it is important to further extend the basic model and account for the possibility that households may be “liquidity constrained,” that is, unable to borrow as much as would be implied at the observed interest rate by unconstrained optimization.

The rationale for such constraints is discussed in section 1.2. Here, we focus on the impact of liquidity constraints on the lifetime consumption plans of households. While in the basic model the household was able to access the financial market to borrow at will against future income, the household could face an upper limit on its level of borrowing or face interest rates that are higher for borrowing than for lending or that increase with the amount borrowed. Liquidity constraints may be simply represented as a prohibition on borrowing, in which case maximization of lifetime utility as in (1) and (2) is further constrained to consumption of no more than currently available resources,

$$c_t \leq (1 + r_t)A_t + y_t = x_t, \quad (6)$$

where x_t is dubbed “cash-on-hand” in the literature; if positive borrowing is allowed up to some limit, total current resources are also increased by the maximum amount that can be borrowed. Additional constraints obviously reduce the welfare achievable by the household, and also influence observable behavior in obvious and less obvious ways. Formally, the Euler equation now takes the following form:

$$u'(c_t) = \max\{u'(x_t), E_t u'(c_{t+1})[(1 + r_{t+1})/(1 + \delta)]\}. \quad (7)$$

This states that, in any time period, the household will either spend its current resources, or equate marginal utilities if the borrowing constraint is not binding currently. Obviously, liquidity constraints reduce borrowing at times when they are binding. Less obviously, the path of lifetime consumption is affected even at times when the unconstrained Euler equation applies, because the anticipation of future binding constraint leads the household to try and reduce their likelihood by building a “buffer” stock of wealth (Deaton 1992, sec. 6.2).

In this and other respects, the implications of borrowing constraints are similar to those induced by precautionary behavior when marginal

utility is nonlinear in the presence of uncertain income streams, as previously discussed. Liquidity constraints and precaution both imply that households borrow less on average, and that their observed consumption growth is faster on average and more sensitive to income shocks. Similar implications for borrowing, consumption, and wealth are driven by different environmental features in the two cases, however, and the two phenomena can be disentangled from each other by bringing additional information to bear on the evidence. As mentioned earlier, the volatility of households' income prospects is relevant to the strength of precautionary motives shaping their behavior, and consideration of liquidity constraints allows consumer-side modeling efforts to account for supply-side conditions (discussed later) in flexible and insightful ways.

1.1.2.3 Durable Goods

An important extension of the basic model of consumption allocation arises from the existence of durable goods (such as a house or a car) whose ownership not only yields a flow of consumption services over several periods, but also constitutes part of a household's wealth. Purchasing a durable good requires a reduction of the household's financial wealth or, if current wealth does not suffice to finance the purchase, entails borrowing.

In the presence of durable goods, the objective of the maximization problem in (1) includes the durables stock d in the utility function,

$$\max E_t \sum_{j=0}^{\infty} \beta^j u(c_{t+j}, d_{t+j}). \quad (8)$$

Like the taste-shifters discussed earlier, the stock of durables can affect the marginal utility of nondurable consumption. Unlike age and other demographic characteristics, however, durables stocks are endogenous to the household's constrained optimization problem. The wealth accumulation constraint (2) is amended to account for purchases of new durable goods (denoted i , which may be negative),

$$A_{t+1} = (1 + r_{t+1})(A_t + y_t - c_t - i_t), \quad (9)$$

and needs to be considered in conjunction with a similar asset-evolution equation for the stock of durable goods, which in any period equals the stock in the previous period, plus new durable purchases,

minus depreciation. If the latter occurs at rate λ , the durables stock d evolves as follows:

$$d_{t+1} = i_t + (1 - \lambda)d_t.$$

Households need to formulate their optimal plan, given their information and expectations about the future, by equating the marginal utility of consumption between periods as in equation (3), and also by equating the marginal utility of durable and nondurable consumption. This determines a set of relationships between the level and dynamics of nondurable consumption, and the stock of the durable good in each period. In general, the presence of durables introduces a more complex and predictable link between utility and consumption flows across periods. (Other specifications that allow the household's utility to depend on a stock variable, such as those that account for habit formation, have qualitatively similar implications in some of the empirically relevant aspects.)

As to household expenditure on the durable good, i , it is intuitively predicted to fluctuate much more than nondurable consumption flows. As the household updates its predicted future income levels, it should adjust the durables stock to its "permanent" level, which—as durables' user costs include foregone asset returns—also depends on interest rates directly as well as through the construction of expected discounted labor income. Thus, durable purchases provide a further, highly variable reason for borrowing by young households that expect their income to increase in the future and have not yet been able to accumulate assets.

In the expressions above, durable good stocks were modeled as perfectly divisible, and the household was supposed to be able to increase or decrease them without incurring adjustment costs. In reality, many households own zero amounts of specific categories of durables, and adjust their stocks infrequently. Models with fixed and adjustment costs can rationalize these empirical regularities. Theoretical and empirical results (Bertola and Caballero 1990; Bertola, Guiso, and Pistaferri 2005) indicate that it is in general optimal for households to allow durable stocks to diverge from their "permanent" level when adjustment is costly, and to implement purchases (or sales) only when income, financial wealth, and depreciation and price dynamics have accumulated so as to imply a discretely large divergence between the actual and desired stocks of durables.

1.1.2.4 Interactions between Credit Constraints and Durable Goods

Just because durable consumption goods are part of the consumer's wealth, financial considerations play a very important role in determining their optimal sales and purchases. For example, a house is both a consumption good and a financial investment, and any housing transaction must be based not only on the consumption "dividend" provided by a house's or apartment's amenities but also on forward-looking expectations of housing prices relative to those of other assets.

Housing is often financed through mortgages. More generally, the durability of housing and other consumption goods features important interactions with credit supply conditions. (Chapter 5 specifically considers such interactions.) Recall that in equation (9) the household's level of consumption was restricted to current income and liquid wealth when borrowing was not allowed. Lenders, however, may allow households to borrow when they have collateral, such as a house or other durable good. If durable goods both provide consumption services and can act as collateral, households may choose a consumption basket with a larger durables component when credit constraints are more binding.

Empirically, households that hold more durable goods should then be observed also to owe more debt. But interactions between interest rates, credit constraints, durable goods, and adjustment costs can be complicated. Juster and Shay (1964) noted that interest rates are different on consumers' assets, liabilities, and durable purchases. They characterized qualitatively the implications of this state of affairs for consumer choices, and explored survey data empirically, focusing in particular on the sensitivity of aggregate consumption to changes in macroeconomic monetary conditions. While the extensive literature analyzing consumers' constrained borrowing mostly did not follow up on these early efforts, focusing on simple quantity constraints instead, there are a few notable exceptions: cash outlays are problematic for liquidity-constrained consumers, who are prepared to pay higher interest rates in exchange for longer loan duration (Attanasio 1995). Brugiavini and Weber (1994) and Alessie, Devereux, and Weber (1997) also analyze empirical relationships between borrowing opportunities and durable good purchases. These and other contributions, however, propose and study models in which borrowing opportunities depend on the existing stock of durable goods rather than on new purchases as would be implied by the mechanisms outlined earlier. Bertola, Guiso, and Pistaferri (2005) focus on the role of uncertainty in shaping durable

and nondurable expenditure patterns; in their data, credit restrictions do not appear to be binding.

Theory and evidence indicate that individuals and households do wish to borrow (as well as save) in order to make consumption smoother than labor income. Allowing households to borrow will raise their welfare. However, access to borrowing is not always easy, and there are important empirical and welfare implications of how the household credit market operates.

1.2 The Economics of Consumer Credit Supply

Lenders to consumption-smoothing households face many of the same problems as lenders to producers. Instead of investing borrowed funds wisely, managers of firms may use them in ways that suit their objectives but make repayment impossible, or very unlikely. As with producer credit, consumer credit supply is hampered by moral hazard and adverse selection problems. If the possibility of consuming more when borrowing today and less when repaying in the future is attractive for a consumer when he or she expects to earn much more in later periods, borrowing is even more attractive if the higher current consumption is not associated with lower consumption in the future—namely, if consumers default on their repayment obligations. Hence, although the previous section explained that limited borrowing opportunities reduced consumers' welfare, credit constraints can be explained by credit suppliers' need to avoid lending funds that will not be repaid.

In general, it is imperfect information and the resulting adverse selection and moral hazard problems that make it difficult for the credit market to clear through prices. Such supply-side problems are familiar from standard and banking textbooks (Freixas and Rochet 1997) and do not need to be reviewed here in as much detail as the demand-side household problem earlier. In this section, we introduce them and discuss their relevance to consumer credit, and to the specific issues addressed by many of this volume's chapters.

1.2.1 Reasons for Lenders to Restrict Credit

When the probability of default differs across borrowers, and is known by borrowers more accurately than by lenders, then demand for credit by borrowers who are more likely to default is less sensitive to the in-

terest rate. Adverse selection occurs because interest rate levels more strongly discourage borrowing by those who plan to repay than borrowing by those who are likely to default. Hence, higher interest rates attract fewer and worse borrowers, and higher default rates imply that higher contractual interest rates can actually result in a lower ex post return on each unit of credit extended. It is then optimal for lenders to set the interest rate so low as to be attractive to “good” borrowers, and to control the risk of default by “bad” borrowers by rationing credit to both high- and low-risk borrowers. In this setting, first analyzed by Stiglitz and Weiss (1981), rationing arises not from any market “disequilibrium” but because lenders set interest rates to obtain the right “mix” of borrowers.¹ This reasoning is theoretically and empirically relevant to consumer credit in that many households appear liquidity constrained, as discussed earlier, and are denied credit.

Moral hazard arises when borrowers can affect the likelihood of repayment. Its relevance is obvious as regards producer credit: an entrepreneur gains from any excess return in a risky project, but losses are limited by bankruptcy. Hence entrepreneurs have incentives to invest in riskier projects when a larger proportion of the cost is funded by loans, and lenders—who suffer losses if the project is unsuccessful—have incentives to limit the amount of credit they extend, so as to force entrepreneurs to bear (and control) a portion of the risk. To some extent, similar phenomena are relevant to household borrowing. Many firms are family owned and operated, which makes it difficult, not to say impossible, to distinguish producer and consumption credit. Employees’ work effort on the job and search effort when unemployed can also influence the level and riskiness of their labor income and debt-repayment ability. But moral hazard is directly relevant, even to the behavior of consumption-smoothing households with exogenous labor income, if repayment reflects the willingness (rather than the ability) to honor one’s debts. When deciding whether to repay, a rational agent weighs the gain of resources from nonrepayment against the punishment for default. If the punishment for default is permanent exclusion from the consumption-smoothing opportunities offered by the financial market, as in models by Kehoe and Levine (1993) and Kocherlakota (1996), quantity constraints emerge endogenously. In fact, a (finite) welfare loss from the lack of consumption-smoothing opportunities can induce repayment only up to a maximum debt level, beyond which any borrower would default and no lenders would rationally extend credit.

Equilibrium models of default recognize that all debt *could* be repaid if the punishment were sufficiently large. In reality, punishment is even less severe than perpetual exclusion from further consumption-smoothing opportunities, and more detailed modeling of borrowers' options upon default offers useful insights into the determinants of liquidity constraints. The ability of the financial market to punish default is limited by its competitive and information-sharing structure (see chapters 9 and 10 in this volume, introduced later in section 1.4) as well as by legal restrictions: For example, bankruptcy cannot be recorded in credit files for more than ten years in the United States. More generally, informal consumption-smoothing opportunities, such as those offered by friends and family, may be available even after default.²

Models of adverse selection/moral hazard were developed in the context of producer credit. While the insights also apply to consumer credit, there are important differences in the underlying features and organization of the producer and consumer credit markets. In both, more difficult enforcement of debt contracts makes lending less attractive for lenders and leads them to restrict credit, but the strength of this effect depends on the details of procedures enacted upon default. On the one hand, the legal provisions for personal bankruptcy on consumer loans (see section 1.3 and chapter 7, this volume) are different from those applicable to loans extended to corporations. On the other hand, and importantly, the amount of debt needed to smooth a typical household's consumption or finance its durable expenditures are much smaller than those needed for firms' investment purposes.

The small size of the debts implies that it is not cost-effective to implement *ex ante* screening of consumers' repayment prospects on a case-by-case basis in an attempt to control adverse selection. In highly developed credit markets, the consumer credit industry has developed sophisticated "scoring" procedures for assessing repayment risk of whole categories of customers or, indeed, of credit transactions on the basis of observable characteristics that, if statistically associated with low repayment probabilities, will lead lenders to reject credit applications. Small transaction sizes also rule out *ex post* monitoring of moral-hazard-prone borrowers, and intense collection efforts are not cost-effective for most consumer loans. In practice, most nonrepayments are "punished" by recording them, and using that information to score and likely refuse further loan applications by defaulting consumers.

1.2.2 The Role of Collateral

Faced with imperfect information on the risk of individual loans, lenders may be reluctant to extend credit to households lacking a repayment history that allows credit bureaus to score them favorably. Asset ownership may also enhance a household's borrowing opportunities, as collateral may allow recovery of at least part of what is owed by defaulting borrowers. For most households, the main source of collateral is housing wealth. Housing purchases are large investments, amounting to a substantial proportion of lifetime income, and usually secured by mortgages. Chapter 5 discusses the particular issues that arise in housing markets and compares them to other forms of credit to the household sector. Lenders also frequently secure their debt against other assets—for example, when the loan is specifically made for the purpose of purchasing durable goods such as cars, or in hire-purchase agreements for household goods. However, in these cases, the resale value of repossessed goods would rarely cover the outstanding debt. (Legal and other costs involved in recovery are substantial. Even for housing debt, U.K. lenders reckon to recover only 75 percent of the value of the property if they foreclose.)

1.2.3 The Role of Retailers and Other Agents in Credit Provision

Banks and other lenders have an obvious comparative advantage, compared to retailers, in processing credit applications. As discussed in chapter 9, most of the increase in indebtedness among U.S. households over the past one hundred years has been due to banks extending credit in cases where previously credit was provided directly and more informally by the retailer at the point of sale. Nevertheless, there are advantages in lenders and retailers cooperating closely. Since the costs to lenders of finding and processing credit applications are lower when transactions are processed on dealers' premises, the banks' relationship with sellers of durable goods is very important. Installment payment plans for certain durable goods purchases may be safer than cash loans from the point of view of lenders, even when they are not backed by housing or vehicle collateral, because a direct link of borrowed funds to a specific use offers valuable information to lenders. Just as the ability to monitor a firm's investment expenditures would be valuable for producer credit suppliers, a consumer's purchase of items such as household appliances may be more favorably correlated with repayment-relevant features of the borrower's lifestyle (and offer lenders more peace of mind) than purchases of, say, fast motorcycles.

Such details of credit supply are only beginning to be studied in the economics literature. Often, favorable credit terms are not granted to purchasers of durable goods by the lending institutions (banks) that bear repayment risks but by the sellers themselves in the form of familiar “zero-rate” financing deals. When such deals are advertised, and customers purchase the item, the bank is entitled to receive future installment payments from the customer. But if the advertised rate is lower than what would be required by the bank’s cost of funds, processing costs, and assessment of repayment probabilities, then the amount paid by the bank to the seller’s account is lower than the amount that the seller would receive had the customer paid with cash.

Seller-financed credit has been studied from a monopolistic price discrimination perspective in the context of business credit. Suppliers rather than banks may provide credit when they are in a better position to screen, select, and discipline the borrower, or to repossess and use the loan’s collateral, as well as for price discrimination purposes. Brennan, Maksimovic, and Zechner (1988) study incentives for sellers of investment goods to finance their customers’ purchases in the presence of ad hoc liquidity constraints, and an extensive literature (surveyed by Petersen and Rajan 1997) studies more general forms of trade credit.

As regards consumer credit, Bertola, Hochguertel, and Koeniger (2005) show that dealer subsidization of consumer credit can be explained by incentives for durable good sellers to engage in monopolistic price discrimination when potential customers face imperfect consumption-smoothing opportunities. If realistic differences between borrowing and lending rates segment the population of potential customers into distinct groups inclined to purchase on cash and on credit terms, sellers can set those terms so as to offer different prices to cash-rich and liquidity-constrained customers, in much the same way as lower prices are sometimes charged to consumers who own particularly old trade-ins or take the time to clip coupons. Hence, the structure of discriminating prices is explicitly linked to intertemporal transfers of resources, and Bertola, Hochguertel, and Koeniger use data from differently developed regions of Italy to confirm their theoretical predictions empirically. As in other models of imperfect price discrimination, some customers may benefit and others may be less well off relative to a single-price configuration. The borrowers pay less than they would if the subsidy were not available, and they pay less on a present discounted basis than those who pay cash. This arises because the inter-

temporal rate of return differs across these groups, the good being purchased is different across groups of consumers, and price discrimination is similar to that which routinely occurs across, for instance, classes of air travel: Business class is not only much more expensive but also more comfortable and less restricted, thus ensuring that customers self-sort in a way that is profitable for the airline. The profitability of additional sales generated by credit availability also plays a role in models of credit card usage (Murphy and Ott 1977; Chakravorti and To 2003), as well as in models of voluntary or legal provisions that make the lender jointly liable for the seller's failure to deliver suitable goods (Spence 1977; Iossa and Palumbo 2004).

While banks have many advantages in offering credit to households, doing so may require that they allocate capital to lending to the household sector for a considerable amount of time. For example, mortgage terms can exceed twenty-five years. In practice, most long-term consumer debt is securitized, that is, packaged in risk-rated instruments on the wholesale financial market: In the U.S. housing market, securitization is aided by implicit government guarantees through institutions such as Freddie Mac, chartered by congress in 1970 (see Passmore 2003); it is a newer phenomenon in Europe. As to the nonsecuritized portions of banks' consumer loans, the Basel capital-adequacy requirements allow short-term debt, such as credit card balances, to be rated according to certified internal procedures. Space does not allow treatment of such aspects here. (Readers may refer to a recent special issue of the *Journal of Banking and Finance* 28, no. 4, 2004.) Also outside the scope of this volume are other financial and industrial organization aspects of the banking industry and a discussion of producer rather than consumer debt, in which there is relatively limited scope for differentiation across countries.

1.3 Repayment Arrears and Default

An understanding of debt is incomplete without an understanding of what happens when the debtor defaults or misses a scheduled repayment. Incentives to both lend and borrow are heavily influenced by whether and under what circumstances the borrower can be made to repay—and which assets can be seized if he does not. The creditor has recourse to several actions. Collateral can be repossessed in the case of housing mortgages or car loans. But for most other consumer credit, if a consumer fails to repay a specific loan, the amounts are often too

small for a lender to try and recover them through formal legal procedures (although the amounts can be substantial when summed across all lenders), and the punishment for debt default takes the form of deteriorating credit scores and limitations to future access to credit. When the debtor defaults and the creditor legally pursues the debt, then the debtor enters bankruptcy.

When do borrowers default? Sullivan, Warren, and Westbrook (1989) look at a sample of bankruptcy filers in the United States and conclude that the nonrepayment of debt provides a safety net from poverty to members of the lower middle class. Bridges and Disney (2004) examine the phenomena of “recycling” of arrears on loans and bill payments among low income households in the United Kingdom. Little is known, however, about the behavior of debtors before and after they fall into arrears. Chapter 2 in this volume offers new relevant information, reviewing surveys of households having difficulties repaying their debts in the United States and several European countries, and concluding that default is often the result of the household suffering some unexpected and adverse shock (such as the main earner losing his job) that makes repayment difficult. This is consistent with the story in section 1.1, and suggests that if there was some way to mitigate the effects of these shocks, there would be a welfare gain to consumers—hence motivating the regulation of default through such things as bankruptcy law.

1.3.1 Bankruptcy

The regulation of bankruptcy has differed substantially throughout history. Some jurisdictions in classical times sold debtors into slavery, while fourteenth-century Florence used the criminal courts to enforce merchant debts, fining such debtors and, if necessary, forcing their relatives to pay (see Stern 1994). Defaulting debtors were liable to be tortured if caught.³

Modern sanctions are less draconian. The courts may manage a bankrupt debtor’s finances, aiming to repay creditors, before discharging his debts. During bankruptcy, the court will share the debtors assets (and income if it is sufficiently high) among the creditors, and the bankrupt consumer is barred from obtaining any more credit. U.S. regulations are much more generous than those of other countries. When U.S. debtors enter bankruptcy, they can not only apply for a court-ordered repayment rescheduling (under Chapter 13 of the relevant legal code) but can also (under Chapter 7) be relieved of liabilities

while keeping many of their assets: in Texas, for instance, a married couple filing jointly can keep their house and \$60,000 worth of other assets regardless of their ability to repay.⁴ Concerns with sharply increasing bankruptcies in the United States prompted a restrictive reform in April 2005, stipulating substantially higher filing costs for personal bankruptcy and preventing individuals earning more than their state's median income from filing under Chapter 7. Introduction or reform of formal household bankruptcy procedures in other countries is also a difficult and relatively unexplored policy issue.

Chapter 7 provides more detail on U.S. institutions, which vary between states, and reviews theoretical and empirical insights; chapter 9 updates the U.S. institutional information and discusses the reforms enacted in 2005. Theoretically, it is clear that the possibility of bankruptcy *ex ante* restricts credit availability: if repayment were completely optional, no lending could ever take place. To the extent that nonrepayment reflects genuine inability to repay due to unforeseeable developments in the individual's life, however, bankruptcy procedures and less formal default opportunities offer potentially valuable consumption-smoothing opportunities across different developments of households' income paths. Lenders faced by a population of potential borrowers will need to receive a higher interest rate upon repayment in order to recoup losses on loans that are not repaid, and this will indirectly transfer resources from consumers who are *ex post* lucky and can repay toward consumers whose income is *ex post* reduced by exogenous events. Clearly, the balance of these effects is not easy to assess in practice, even in a steady-state situation.

The literature reviewed in chapter 7 draws lessons from the U.S. experience, which are very useful as the UK, France, and other European countries engage in reforms of default regulations that aim at making bankruptcy quicker, easier, and less traumatic for the debtor. Bankruptcy proceedings in England and Wales changed in April 2004, with much of the emphasis on proceedings for entrepreneurs (although these formed only a third of bankruptcies). Debtors are now normally discharged from their first bankruptcy within one year rather than after three, although they can be ordered to make payments from their income for up to three years, and these income payments were made easier to administer and could now extend beyond discharge. However, for repeat bankrupts, or for those judged to have behaved recklessly or irresponsibly, the process can last up to fifteen years.

The reforms also removed some of the restrictions that had been placed on bankrupts and seriously tried to distinguish fault with those who were deemed to be in some way culpable suffering many more penalties: previously, all bankrupts had received substantively the same treatment. It was also made easier to come to individual voluntary agreements, or court-supervised repayment plans proposed by the debtor and binding when agreed to by 75 percent of the creditors by value, in which the debtor does not suffer the full penalties of bankruptcy. Following the reform, both bankruptcy filings and voluntary agreements have risen 30 percent in the months following the change, and are the highest ever recorded in England; although at 9,000 bankruptcy orders and 2,500 voluntary agreements per quarter, this is far lower than U.S. per capita levels.

Arrangements similar to the English voluntary agreements were introduced in France in December 1989, and the law was most recently amended in August 2003. It allowed courts to propose a recovery plan, which if agreed by the debtor and creditors, would suspend the normal operation of bankruptcy (where assets were seized, and wages could be garnished until the debt was repaid) if the consumer was “over-indebted” (for example, if it was obviously impossible for the debtor to meet all his outstanding and accruing personal debts). Unlike in England, either party could stop the plan before it was completed if, for example, the debtor’s situation changed. At the end of the plan, remaining debts are discharged although the debtor’s name was inscribed on a national list of defaulting debtors for up to ten years.

1.3.2 Counseling

Courts can also order other measures, such as counselling, to address repayment problems. Consultation, at the debtor’s expense, is now required in the United States before bankruptcy filing. Little work has been done specifically on the European regulations and despite differences in bankruptcy in Europe and the United States, there is much to learn from the U.S. experience. In France, mandatory counseling is widely imposed by courts in which small debtors can also obtain from courts a “time order provision” to rearrange their debts. Many defaulting debtors may be simply unfortunate, though others may have behaved “irresponsibly” by accumulating debt with little apparent regard for their ability to repay (Sullivan, Warren, and Westbrook 1989). Chapter 6 shows that the behavior of households that use credit cards is often difficult to reconcile with the theory of borrowing in section

1.2. Chapter 2 also shows that default may often be the consequence of debtors' limited understanding of contractual provisions. These findings suggest that debtors, especially those having problems repaying their debts, could usefully be offered advice or counseled about their use of credit. In the United States, this counseling is usually offered by nongovernment organizations—that is, credit counselors—who are cofunded by creditors and those debtors seeking advice. This contrasts with the United Kingdom, where Citizens Advice Bureaus offer free counseling and are for the most part directly funded by national and local government.

The U.S. arrangement is not problem-free. Chapter 8 charts the development of the credit counseling industry in the United States, and especially its role in negotiating repayment plans with creditors (in which the lender typically discounts the debt) on behalf of debtors who are in arrears. Counselors are only paid for these repayment plans; hence, they have a clear conflict of interest vis-à-vis the debtor (who want to minimize their repayment, taking account of the costs, including the stigma, of bankruptcy) and the creditor (who want to maximize the repayment they receive, whether or not through a formal repayment plan). While in the past, a lack of competition among counselors alleviated these agency problems, more recently, competition seems to have caused counseling firms to concentrate much more clearly on maximizing their payments (or be driven out of business). Amazingly, the NFCC, the leading purveyors of counseling advice, still advise bankruptcy in over 30 percent of cases and “educate” borrowers about planning their finances in another 30 percent of cases, services for which they are not paid. Chapter 8 also discusses some recent developments by lenders to address the agency problem, but nevertheless, this chapter shows that counseling seems to work.

1.4 Sharing Information among Lenders

As discussed in section 1.2, lenders assess credit applications on the basis of observable indicators in order to control adverse selection, and exclusion of defaulters from further borrowing can play an important role in controlling moral hazard. For both purposes, historical data on past repayment behavior is very useful. It may be gathered about their own customers by individual banks or lending institutions, which thereby gain informational advantages on potential competitors. Or it may be shared by all market participants on the basis of the economic

considerations and institutional constraints. Chapters 9 and 10 review historical, theoretical, and empirical aspects of information-sharing arrangements, which play a particularly important role in consumer credit supply. Pooling information offers stronger economies of scale when small amounts are involved in each transaction and extensive information on similar transactions can help predict individual repayment probabilities. And information-sharing arrangements are more pervasively shaped by official regulatory frameworks in the case of household borrowing because an individual's privacy is more likely than a corporation's to be protected by regulators. Chapter 9 discusses the history and motivation of regulating information sharing in the United States. Similar developments are observed in other countries with more recent consumer credit industries. In continental Europe, privacy concerns play an important role.⁵ Chapter 2 reviews indicators of data protection regulations and, similar to chapter 10, discusses the effect that different regulation of information sharing has on credit markets in different countries. The integration of European Union credit markets introduces particular issues for information sharing, and chapter 2 assesses the likely effect of recent policy proposals from the European Commission.

1.5 Other Issues and Further Research

It is easy to model perfectly flexible credit arrangements, but, as discussed in section 1.2, they do not describe many individuals' borrowing opportunities. Realistic credit imperfections are many, varied, and interact in interesting and subtle ways with imperfections in other markets. This introductory chapter has painted a broad picture of the main specificities of consumer credit arrangements. The other chapters in the book focus on particularly important aspects of the issues that arise with consumer credit, but, of course, the volume cannot address all of the relevant issues, many of which are just beginning to be studied in the literature.

As the accessibility and volume of household credit instruments grow, the macroeconomic implications of consumer credit phenomena become increasingly important, but are relatively poorly understood.⁶ This largely reflects the difficulty of disentangling changing structural features, of the type discussed comparatively by many chapters in this book, from cyclical phenomena with which supply-driven developments interact at the macroeconomic level. For example, much of the

U.K. boom during the 1980s was reflected in consumption, and financial market deregulation played an important role in that episode (Attanasio and Weber 1995); evidence from mature household-finance markets such as the United States and United Kingdom indicates that the transmission of monetary impulses works through consumption as well as through production and investment, as discussed in chapter 5 with specific attention to housing prices and consumption. This could exaggerate the business cycle, a point made by Aghion, Bacchetta, and Banerjee (2003). But these issues and the mechanism that maps consumption to the aggregate economy are an open research question.

At the industry level, interactions between supply and demand factors are also only beginning to be studied in the consumer credit context. One such study is Alessie, Hochguertel, and Weber 2005. Like chapter 4, this study examines the Italian case, exploiting both time-series and regional variation. Like chapter 5, it exploits disaggregated supply-relevant information to assess characteristics of demand: Rather than exploiting housing equity variations as a factor relaxing quantity constraints, it exploits the supply shift induced by a usury law to estimate the interest elasticity of consumer credit demand. The authors use information from a variety of sources, including administrative data made available by lending institutions.

These and other policy aspects are relevant on both sides of the Atlantic. We believe that bringing together experiences of the operation of credit markets in different countries can help academics, policy-makers and practitioners better understand how credit markets can usefully help consumers smooth consumption over time, and assist in determining what measures, if any, can make markets perform better.

Notes

1. Ausubel (1991) argues that a model based on rationing of credit markets because interest rates are “too low” flies in the face of empirical evidence that credit providers, especially credit card providers, tend to levy interest rates well above those that would exist in competitive markets. Bertaut and Haliassos (chapter 6) further discuss why households borrow on credit cards (especially when they have assets earning lower interest rates).
2. Within family and other local circles, repayment is supported by informal trust mechanisms. In developing countries, Rotating Savings and Credit Associations (ROSCAs) rely on similar mechanisms.
3. Enforcing merchant debts was considered so important that the Mercanzia, the court that usually tried debt cases, conducted day-to-day diplomatic relations with foreign states in the fourteenth century: Italian city-states made great efforts to enforce debts in

foreign jurisdictions. The Mercanzia even had the right of reprisal (a kind of miniature declaration of war) against other states (especially remarkable since it was always headed by a foreigner).

4. Such generous provisions are not unique. Louis XIV of France, for instance, exempted peasant livestock from seizure for debts. What is unique about the United States is the avowed purpose of bankruptcy—namely, to allow debtors to make “a fresh start.” Louis XIV wanted to ensure assets did not move from peasants, who were taxable, to nobles or townsmen, who were tax exempt (see Root 1987).

5. Throughout we talk about “privacy” rather than “confidentiality,” which should properly be used. The English law countries do not protect privacy (something that is private and not known to others) but do protect confidentiality (when this private fact is necessarily disclosed as part of the relationship between two parties). In law, what matters in these countries is how the information was acquired. And banks that discuss their clients’ financial circumstances are breaching confidentiality, unless this information sharing is in the interest of their client. Other jurisdictions also provide greater protection to confidential—rather than private—information. Much of the regulation defines criteria for disclosure to third parties to be beneficial.

6. Stiglitz and Weiss (1992) discuss the macroeconomic implications of rationing varying over the business cycle, but Bernanke and Gertler (1995) argue production declines follow declines in final demand and that declines in consumer spending, especially on durable purchases, are what drive the economy. The relative degree to which the household and the production sector affected recessions is documented by Perry and Schultze (1993), while Hall (1993) argues that the consumption fall caused half the fall in output in the 1990–1991 recession in the United States; see also Blanchard 1993.

References

- Aghion, Philippe, Phillippe Bacchetta, and Abhijit Banerjee. 2003. “Financial Development and the Instability of Open Economies.” *Journal of Monetary Economics* 51: 1077–1106.
- Alessie, Rob, Michael P. Devereux, and Guglielmo Weber. 1997. “Intertemporal Consumption, Durables and Liquidity Constraints: A Cohort Analysis.” *European Economic Review* 41, no. 1: 37–59.
- Alessie, Rob, Stefan Hochguertel, and Guglielmo Weber. 2005. “Consumer Credit: Evidence from Italian Micro Data.” *Journal of the European Economic Association* 3, no. 1: 144–178.
- Attanasio, Orazio P. 1995. “The Intertemporal Allocation of Consumption: Theory and Evidence.” *Carnegie-Rochester Conference Series on Public Policy* 42: 39–89.
- Attanasio, Orazio P. 1999. “Consumption.” In *Handbook of Macroeconomics*, vol. 1, ed. J. B. Taylor and M. Woodford, 741–812. Amsterdam: Elsevier Science B.V.
- Attanasio, Orazio P., and Guglielmo Weber. 1995. “The U.K. Consumption Boom of the 1980s, Aggregate Implications of Microeconomic Evidence.” *The Economic Journal* 104, no. 427 (November 1994): 1269–1302.
- Ausubel, L. M. 1991. “The Failure of Competition in the Credit Card Market.” *American Economic Review* 81 (March): 50–81.

- Bernanke, Ben S., and Mark Gertler. 1995. "Inside the Black Box: The Credit Channel of Monetary Policy Transmission." *Journal of Economic Perspectives* 9: 27–48.
- Bertola, Giuseppe, and Ricardo Caballero. 1990. "Kinked Adjustment Costs and Aggregate Dynamics." In *4th NBER Macroeconomics Annual*, 237–288. Cambridge, Mass.: NBER.
- Bertola, Giuseppe, Luigi Guiso, and Luigi Pistaferri. 2005. "Uncertainty and Dynamic Durable Adjustment." *Review of Economic Studies* 72: 973–1007.
- Bertola, Giuseppe, Stefan Hochguertel, and Winfried Koeniger. 2005. "Dealer Pricing of Consumer Credit." *International Economic Review* 46, no. 4: 1103–1142.
- Blanchard, Oliver. 1993. "Consumption and the Recession of 1990–91." *American Economic Review* (Papers and Proceedings) 83, no. 2: 270–274.
- Brennan, Michael J., Vojislav Maksimovic, and Josef Zechner. 1988. "Vendor Financing." *Journal of Finance* 43, no. 5: 1127–1141.
- Bridges, S., and R. Disney. 2004. "Use of Credit and Arrears on Debt among Low-Income Families in the United Kingdom." *Fiscal Studies* 25 (March): 1–25.
- Brugiavini, Agar, and Guglielmo Weber. 1994. "Durables and Non-durables Consumption: Evidence from Italian Household Data." In *Saving and the Accumulation of Wealth: Essays on Italian Household and Government Saving Behavior*, ed. Albert Ando, Luigi Guiso, and Ignazio Visco, 305–329. Cambridge: Cambridge University Press.
- Calder, Lendol. 1999. *Financing the American Dream: A Cultural History of Consumer Credit*. Princeton, N.J.: Princeton University Press.
- Chakravorti, Sujit, and Ted To. 2003. "A Theory of Credit Cards." Mimeo., Federal Reserve Bank of Chicago.
- Deaton, Angus. 1992. *Understanding Consumption*. Oxford: Oxford University Press.
- Freixas, Xavier, and Jean-Charles Rochet. 1997. *Microeconomics of Banking*. Cambridge, Mass.: The MIT Press.
- Gelpi, Rosa Maria, and François Julien-Labruyere. 2000. *The History of Consumer Credit: Doctrines and Practices*. London: Macmillan Press.
- Guiso, Luigi, Michael Haliassos, and Tullio Jappelli, eds. 2001. *Household Portfolios*. Cambridge, Mass.: The MIT Press.
- Guiso, Luigi, Michael Haliassos, and Tullio Jappelli, eds. 2003. *Stockholding in Europe*. London: Macmillan.
- Hall, Robert E. 1993. "Macro Theory and the Recession of 1990–91." *American Economic Review* (Papers and Proceedings) 83, no. 2: 275–279.
- Iossa, Elisabetta, and Giuliana Palumbo. 2004. "Product Quality, Lender Liability and Consumer Credit." *Oxford Economic Papers* 56: 331–343.
- Juster, F. Thomas, and Robert P. Shay. 1964. "Consumer Sensitivity to Finance Rates: An Empirical and Analytical Investigation." NBER Occasional Papers no. 88, Cambridge, Mass.
- Kehoe, Timothy J., and David K. Levine. 1993. "Debt-constrained Asset Markets." *Review of Economic Studies* 60, no. 4: 865–888.

Kocherlakota, N. R. 1996. "Implications of Efficient Risk Sharing without Commitment." *Review of Economic Studies* 63, no. 4: 595–609.

Krueger, Dirk, and F. Perri. 2004. "On the Welfare Consequences of the Increase in Inequality in the U.S." In *18th NBER Macroeconomics Annual*, 83–121. Cambridge, Mass.: NBER.

Manning, Robert D. 2000. *Credit Card Nation: The Consequences of America's Addiction to Credit*. New York: Basic Books.

Modigliani, Franco and Richard Brumberg. 1954. "Utility Analysis and the Consumption Function: an Interpretation of Cross-Section Data." In *Post-Keynesian Economics*, ed. K. K. Kurihara. New Brunswick, N.J.: Rutgers University Press.

Murphy, Michael M., and Mack Ott. 1977. "Retail Credit, Credit Cards and Price Discrimination." *Southern Economic Journal* 43, no. 3: 1303–1312.

Passmore, Wayne. 2003. "The GCE Implicit Subsidy and Value of Government Ambiguity." Federal Reserve Board Finance and Economics Discussion Series no. 2003-64, Washington, D.C.

Perry, George L., and Charles L. Schultze. 1993. "Was the Recession Different? Are They All Different?" *Brookings Papers on Economic Activity* 1: 145–211.

Petersen, Mitchell A., and Raghuran G. Rajan. 1997. "Trade Credit: Theories and Evidence." *Review of Financial Studies* 10, no. 3: 661–691.

Poterba, James M., ed. 1994. *Public Policies and Household Saving*. Chicago: University of Chicago Press.

Root, Hilton L. 1987. *Peasants and King in Burgundy*. Berkeley, Los Angeles, and London: University of California Press.

Spence, Michael. 1977. "Consumer Misperception, Product Failure and Producer Liability." *Review of Economic Studies* 44, no. 3: 561–572.

Stern, Laura. 1994. *The Criminal Law System of Medieval and Renaissance Florence*. Baltimore and London: Johns Hopkins University Press.

Stiglitz, J. E., and Weiss, A. 1981. "Credit Rationing in Markets with Imperfect Information." *American Economic Review* 71 (June): 393–410.

Stone, Lawrence. 1965. *The Crisis of the Aristocracy 1558–1641*. Oxford: Oxford University Press.

Sullivan, Teresa, Elizabeth Warren, and Jay Lawrence Westbrook. 1989. *As We Forgive Our Debtors: Bankruptcy and Consumer Credit in America*. New York and Oxford: Oxford University Press.

Sullivan, Teresa, Elizabeth Warren, and Jay Lawrence Westbrook. 2000. *The Fragile Middle Class: Americans in Debt*. New Haven and London: Yale University Press.