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Do Round Numbers Influence Consumer Debt Repayment?

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This research explores if consumers are influenced by number endings when considering debt repayment. Using two field studies and a lab experiment, we show that consumers are more likely to repay debts ending in round numbers (i.e., '0' and '5') than other debt amounts (including 9-endings), after controlling for potential confounds.

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EXTENDED ABSTRACT

It has long been known that retail prices are usually set at round numbers or at numbers that are just below round numbers. Price-ending incidence studies typically observe a characteristic three-peaked “E” shape, with peaks at numbers ending in 0, 5, and 9 (Schindler 2009; Schindler and Kirby 1997; Twedt 1965). Prior research has documented that the use of prices ending in 9 can sometimes have a substantial positive effect on sales. Although multiple psychological mechanisms have been offered for this phenomenon, one explanation that has received considerable empirical support is the meaning mechanism. According to this explanation, the number 9, particularly in the right-side digit of prices, has obtained a symbolic meaning which increases its attractiveness. For example, 9 or 99 may connote “bargain” or “low price” to consumers, thereby producing a local upward “spike” in purchases at 9-ending prices relative to other objectively similar amounts. However, little work exists to account for the over-representation of 0 and 5 endings. Thomas et al. (2010) have found that round numbers are perceived by consumers as larger, but that should make them less, not more, likely to be used by retailers. And while there is evidence that 0- and 5-ending prices may be a signal for high quality, they may also signify a high price or expensiveness (Naipaul and Parsa 2001; Schindler, Parsa, and Naipaul 2011; Stiving 2000).

In this research, we examine whether numerical spikes affect another type of financial decision that often follows the purchase of goods or services. Specifically, we explore whether and how consumers are influenced by number endings when considering debt repayment. Consumer debt is pervasive, particularly in the United States; yet, the psychological factors that determine whether or not consumers will quickly repay their debts are not well-understood. Our investigation centers on two related questions: If repayment rate spikes do occur at specific number endings, which numbers are the most likely candidates? And will these spikes point upward (i.e., indicating higher repayment rates) or downward (i.e., indicating lower repayment rates)?

With respect to the first question, one possibility is that the 9-ending spikes that arise when consumers evaluate prices also occur when they consider debts. Because both prices and debts are usually expressed as monetary terms, the same meaning mechanism might apply to both situations. That is, consumers may perceive 9-ending debts as “low,” which may in turn influence the likelihood of repayment. In support of this possibility, prior empirical work has documented 9-ending effects in non-price domains, including perceptions of product quality ratings.

On the other hand, the decision to repay a debt is very different from the decision to purchase a product; thus, the connotations of “bargain” and “low price” do not necessarily apply. Even if the meaning transfers, it is unclear if the direction of the resulting spike will be upward or downward in the context of debt repayment. If one’s debt amount is perceived to be low, a consumer may become more motivated to quickly “clear the books.” However, perceiving one’s debt as low could instead diminish the burden of obligation or the urgency of repayment, thereby making a consumer less likely to take action. If both of these effects occur simultaneously, they might cancel each other out, resulting in the absence of repayment spikes for 9-ending debts overall.

An alternative possibility is that repayment rates may spike at “round” numbers instead of at 9-endings. Although prior research sometimes designates round numbers as those used in approximate expressions (e.g., 10, 20, 25, 30, 40, 50, 100, 1000), we follow a broader definition that considers all zero-ending and 5-ending numbers as round but acknowledges variation in “roundness” among this set.

In contrast to the “low” connotation of 9-ending prices, round number prices may be imbued with the symbolic meaning of “high” or “large.” Indeed, prior research has shown that round prices (e.g., \$364,000) were considered larger than comparable “sharp” prices (e.g., \$364,578). This may be a learned association, formed because people tend to use round numbers when communicating amounts of large magnitudes. If round-number debts are considered to be high, opposing predictions can still be made about the direction of the ensuing repayment spike for the same reasons that were previously articulated when discussing 9-endings.

The potential debt repayment spikes discussed thus far all relate to a meaning mechanism wherein 9-endings are perceived as “low” and/or round-number endings are perceived as “high.” As already discussed, however, the link between perceived debt size and likelihood of repayment is not clear-cut. We therefore advance a different hypothesis which predicts only an upward round-number spike based not on meaning, but on a metacognitive mechanism.

Our proposal is that consumers may be inclined to repay round-number debts faster than other number endings because round numbers are cognitively fluent- they are easy to process, produce, and recall. We first tested these competing hypotheses in two field studies. In the first study, we obtained patron-level data from a university library on fines charged over a three-year period. We found that patrons were much more likely to take action on library fines (e.g., by paying them or by requesting a waiver) when the amount owed ended in a round number (e.g., \$.50 or \$.00) rather than a sharp number (e.g., \$.20, \$.40, etc.).

In a second field study, we examined data from an automated communications service used by a cable company to collect on delinquent payments. Applying logistic regressions on a cross-section of delinquent subscribers’ binary decisions of whether to pay off their balances, we found robust evidence that accounts with a balance ending in a round number (e.g. \$150, \$205, etc.) were much more likely to be repaid than accounts with a sharp-number integer balance (e.g. \$146, \$208, etc.). These results were obtained after potential confounding factors were accounted for, including the size of the delinquent account balance, the unique number of communication attempts to solicit payment, the tenure of the account, the gender of the subscriber, and the number of subscribed services (e.g., Internet, cable, etc.).

In a subsequent lab experiment, we provided converging evidence that consumers are more likely to repay round numbers versus debts ending in sharp numbers, including 9-endings. However, this effect was only observed when participants were under cognitive load. Under conditions of no load, consumers were equally likely to pay round and sharp number debts. This finding suggests that the round-number effect in debt repayment may be due to ease of processing, rather than any signaling-based explanation. In addition to its obvious managerial implications, this work provides a more nuanced picture of how round numbers influence important consumer financial decisions.

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