Consumer Spending and Foreign Currency

KIT MATTOCK

Senior Freshman

In January 2002, Italy changed its currency at an exchange rate of 1936.27 lira to one euro. Were there any psychological effects of such a large nominal change in currency on the spending habits of its inhabitants? In this essay, Kit Mattock deftly contrasts two competing theories in behavioural economics in an attempt to discern whether one is more thrifty, or profligate, when using an unfamiliar currency.

Introduction

This essay will outline the components of decision-making exhibited by a consumer when faced with an unfamiliar currency, and analyse attempts to reach a conclusion on the subject. A simple prediction is that the higher a currency's numerosity (i.e. the lower its unit value) relative to an individual's 'home currency', the more likely the consumer is to shy away from purchases bearing the apparently inflated price mark. Indeed, one model predicts this formally - applying a combination of the money illusion phenomenon and the adjustment from an anchor heuristic. Others have found the opposite to be true, however, and use similar biases to explain the apparently common 'play money' effect of holding a budget in a low-value foreign currency.

Theories

Money Illusion and Anchoring

The best example of money illusion is the case of salary change. In one possibility, a 2 per cent rise in salary is received in times of 4 per cent inflation. In the other, a 2 per cent cut is suffered, but there is no inflation. Despite the two instances being mathematically identical in terms of real salary change (and so identical in their supposed impact upon the employee's livelihood), the employee favours the first, because nominal salary rises (Shafir, Diamond and Tversky, 1997, p. 347). Money illusion is, as in this example, an inclination to assess the real value of an economic transaction with a reliance on the nominal factors (Shafir et al., 1997, p. 348). This propensity of people to rely on absolute figures is not necessarily logical or beneficial - it is induced from a desire for speed, ease and simplicity.

In the case given above, if one were to remove the instance of inflation, the choice would not be distorted, and there would be no money illusion. This is not to say, however,

that money illusion is extinguished when there is no inflation to muddy the agent's choices. In fact, money illusion may be beneficially extrapolated to other areas (Shafir et al., 1997, pp. 367-368). The phenomenon can be usefully applied to analyse the behaviour of a consumer when dealing with an unfamiliar currency – or in any other instance where nominal diverges from real.

The unfamiliarity of a foreign currency leaves consumers at a partial loss as to its value in real terms. Raghubir and Srivastava (2002) found that people tend to underspend when the nominal value (the face value) of the foreign currency is a multiple unit of the currency they are accustomed to. Conversely, when faced with an unfamiliar currency holding a face value just a fraction of their home currency, consumers tend to overspend (Raghubir and Srivastava, 2002, p. 346). This they put down to the 'face value effect'. It can be analysed as a combination of the aforementioned money illusion phenomenon and the 'adjustment from an anchor' heuristic.

Research in decision-making tells us that consumers make decisions on and form opinions of the price of goods in relation to a number of factors: the prices of other goods around them and the availability of certain information. 'Heuristics' used in uncertain situations can be regarded as separate to budget constraints. They have been found to be systematic, and therefore predictable. These cognitive shortcuts can tell us a number of things about spending behaviour, and of particular interest in this case (and, indeed, central to Raghubir and Srivastava's face value effect) is the anchor heuristic.

Tversky and Kahneman detail the anchor heuristic as a reliance on 'an initial value that is adjusted to yield a final answer' in the face of uncertainty (1974, p.1128). Citing a number of studies, they conclude that the process 'is usually employed in numerical prediction when a relevant value is available' (1974, p. 1131). This relevant value, used as a reference point, can come in a number of forms. Research presented subjects with random numbers to begin with – these numbers were then seen to influence future judgements. In one such study, estimations as to the percentage of African countries in the United Nations were consistently biased depending on a random number generated from a wheel of fortune (Tversky and Kahneman, 1974, p. 1128). 'Different starting points yield different estimates, which are biased toward the initial values' (1974, p. 1128).

This anchoring heuristic ties in well with money illusion, as Shafir et al. point out in their example of someone trying to sell a house in noninflationary times: 'This person, even if aware of the true value of houses, may anchor on the (historical) price that he paid for the house and may be reluctant to sell the house for less than that nominal anchor' (1997, p. 347). Furthermore, when using an unfamiliar currency, people are even more susceptible to the heuristic (Mussweiler and Englich, 2003, p. 287). The strength of the money illusion bias depends on the salience of the nominal and real representations of a price (Shafir et al., 1997, p. 348), and it is when dealing with a foreign currency that the real price of a product becomes especially obscured. 'A consumer is said to suffer from

money illusion if an increase in his monetary means causes him to feel better off and buy more regardless of what has happened to money prices' (Green, 1976, p. 52). Although this explanation may have been specified towards the behaviour of a consumer under inflation – as was the original description by Shafir et al. (1997) – one can see parallels to the case of the consumer with a foreign currency; the increase in the nominal value of the consumer's monetary means (due to a higher numerosity currency) makes them blind.

Currency

When applied to the instance of a consumer faced with a price in a foreign currency, then, Raghubir and Srivastava (2002) argue that people use the nominal value of the price of a product as an anchor (this is the available 'relevant value'). Having used this '[more] accessible and perceptually salient information' as a starting point, one then inadequately adjusts for the exchange rate (Ibid, p. 336). Raghubir and Srivastava's face value theory can be exemplified thus: a consumer with a home currency of Euros travels to Japan and is faced with the option of purchasing a hamburger for ¥400 – this '400' remains the consumer's anchor. In this uncertain situation (this consumer is unfamiliar with Yen), the consumer finds a 'real' value in Euros – about €2.80. Due to money illusion, the consumer is biased towards the nominal '400' value - with the anchor heuristic amplifying this bias - and underspends. The adjustment to find the real value using the exchange rate is inadequate. A study to explore such reasoning leads the two authors to reach the conclusion that underspending is common in a 'multiple' foreign currency, and overspending is common in a 'fraction' foreign currency (Ibid).

Money illusion is at its strongest under time pressure, and this holds true for the face value effect. As one would expect, the longer a consumer has to adjust to a foreign currency and contemplate the transactions they are doing, the lower the effect (Raghubir and Srivastava, 2002, pp. 343-344). Once one is aware of an anchoring bias, can it be avoided? Not really; Wilson, Houston and Etling make the point that 'they would not know how much to adjust their answer to correct for the bias' (1996, p. 390). The consumer would not know to what extent their purchasing decision had been swayed by the initial anchor and so wouldn't be able to act as if it did not exist. Almost paradoxically, some suggest that high levels of motivation towards making the correct and rational decision may actually increase the effect of such heuristics (Pelham, Sumarta, and Myaskovsky, 1994, p.128). Mussweiler and Englich found that, whilst this is true, the overall effect lessens over time; as is the case with the introduction of the Euro: 'The better people have adapted to the Euro, the less uncertain they should be in making price estimates in Euro, and the less susceptible they should be to the anchoring bias.' (2003, p. 287).

Other conclusions have been reached on the behaviour of a consumer when using a foreign currency. Raghubir and Srivastava's face value effect ignores consumer budgeting,

and arguably to its detriment. By considering that when spending abroad, as at any other time, a consumer assesses their overall budget, Wertenbroch, Soman and Chattopadhyay found that a consumer faced with 'low numerosity' currency (relative to their base currency) spends less than when they are faced with a 'high numerosity' currency (2007, p. 5). This conclusion is in opposition to the one given earlier.   The reasoning for this incorporates, as in the previously analysed argument, the consumer's propensity to lean on nominal values:

> "…*a low numerosity currency yields less perceived purchasing power than a high numerosity currency because the difference between the overall budget and category-specific spending (i.e., what is left over in the overall budget after spending in the category) is nominally smaller.*" (Wertenbroch et al., 2007, p. 5).

Going back to our Japanese hamburger example, a consumer might have previously allocated a budget to spend on food and other shopping on their travels. This consumer has a monthly income of €3,000 - the budget set aside for shopping when abroad is €500, and in line with the standard theory of budget constraints, the consumer evaluates transactions relative to this reference standard (it is salient and easily compared to). When converted to yen, a 'high numerosity' currency, this budget becomes ¥66,500. The ¥400 hamburger leaves the consumer with a budget of ¥66,100. It is this high-value residual that Wertenbroch et al. reason gives the consumer a heightened sense of purchasing power (2007, p. 5). In other words, the hamburger doesn't seem to leave much of a dent in the tourist's budget – they are left with a high nominal value of ¥66100. The consumer anchors on this high value before insufficiently adjusting for the exchange rate and finding out the real value of their remaining budget (Wertenbroch et al., 2007, p. 3). Conversely, if the consumer were to instead travel to the UK and face the option of buying a hamburger for £2.50, the same action would leave them with a budget of 'only' £417.50. The consumer's perceived purchasing power is diminished.

The real difference between these conclusions, then, is that the former suggests an inadequate nominal adjustment of the price of a product in an unfamiliar currency (thus their 'face value effect'). The latter group found that the inadequate adjustment occurs when converting a residual budget back to the familiar currency. This difference, of course, completely flips the conclusion. Both groups put the inadequacy down to both the money illusion phenomenon and the anchor tendency – the mechanism is the same.

If one were to subscribe solely to the view that budget constraints are managed by ratio assessment, then the above theory would not really hold, as the ratio of hamburger to budget is the same no matter what currency the consumer deals with (about 167:1 in our example). Spending by ratio assessment says that consumers base purchasing decisions on a rough calculation of how many of a certain good they can consume with a given

budget. But Wertenbroch et al. argue that consumers instead compare prices to budget by difference assessment: 'Consumers may take the difference between their budget and the price, showing how much money they will have left over in their budget after the purchase' (2007, p. 3). This allows for the above proposition – that the consumer anchors on the nominal difference between the price and their budget in a foreign currency. It also stands to reason that, when dealing with an unfamiliar currency, a consumer budgets in such a way (for a holiday, a business trip) setting aside an amount for spending and regularly checking its level.

Raghubir and Srivastava do take a similar proposition into account, and acknowledge the 'common wisdom' of the 'play money' effect, where a consumer spends more with a higher numerosity currency because they perceive it as going further (2002, p. 339), but they never formally analyse it or counter-argue - other than to contend that their evidence says the opposite. As pointed out by Wertenbroch et al., their research doesn't bring into account any budget reference point (2007, p.6), which diminishes real-world applicability.

Mental Budgeting

The two theories, the face value effect and what one might call the budget value effect, reach different conclusions primarily because, as discussed above, they assume differing treatment of the consumer's budget. The former assumes the budget is not considered at all, whereas the latter insists it is the budget residual that is the victim of the biases. This conflicting conclusion could be put to good use by considering which kind of person might have a tendency to favour which device.

One study found that mental budgeting, the set of cognitive operations used by people to keep track of financial activities, is less common amongst wealthier individuals:

> "The financial situation of the household also affects mental budgeting. Less wealthy re spondents (lower household income, smaller net value of the house, and less savings) with more debts practice mental budgeting more often than the wealthy. Possibly, there is less need for mental budgeting as an instrument to economize and to keep control over expen diture, if there is enough money available." (Antonides, Manon de Groot, and Fred van Raaij, 2011, p. 552).

Mental budgeting is the process by which consumers set budgets for various expense accounts, for example, the 'travelling expense' account this essay is interested in. As money is spent, people assign their expenses to appropriate accounts and periodically re-calculate

the amount of money left in each budget (Heath and Soll, 1996, p. 41). This process is in line with the 'spending by difference assessment' idea, one that supports the theory put forward by Wertenbroch, et al. (2007), and is part of the wider class of consumer behaviour known as mental accounting (Thaler, 1985, p. 207). As quoted above, then, Antonides, et al. found that this is practiced more by less wealthy individuals. As the budget value effect rests on the premise of mental budgeting, it can be concluded that it is more likely a characteristic of less wealthy people.

Conclusion

Whilst money illusion and the anchor heuristic can provide broad insight into consumption behaviour when using a foreign currency, the various theories considered in this essay show that conclusions drawn from such insight can differ vastly. One cause of such difference, the treatment of budget, has been studied in more detail to conclude that the latter of our main consumption theories - spending is higher with a high numerosity currency – holds particularly true for less wealthy consumers. Limited experimentation in the area to date leaves this hypothesis untested.

References

Antonides, G., Manon de Groot, I., Fred van Raaij, W. 2011. Mental budgeting and the management of household finance. Journal of Economic Psychology 32(4), pp.546-555.

Green, J. 1976. Consumer Theory, Revised Edition. The Macmillan Press.

Heath, C. and Soll, J.B. 1996. Mental Budgeting and Consumer Decisions. The Journal of Consumer Research 23(1). Pp.40-52.

Mussweiler, T. and Englich, B. 2003. Adapting to the Euro: Evidence from bias reduction. Journal of Economic Psychology. 24, pp.285-292.

Pelham, B.W., Sumarta, T.T., Myaskovsky, L. 1994. The Easy Path from Many to Much: The Numerosity Heuristic. Cognitive Psychology 26, pp.103-133.

Raghubir, P. and Srivastava, J. 2002. Effect of Face Value on Product Valuation in Foreign Currencies. Journal of Consumer Research. 29(3), pp.335-347.

Shafir, E., Diamond, P., Tversky, A. 1997. Money Illusion. The Quarterly Journal of Economics. 112(2), pp.341-374.

Thaler, R. 1985. 'Mental Accounting and Consumer Choice'. Marketing Science 4(3), pp.199-214.

Tversky, A. and Kahneman, D. 1974. Judgement under uncertainty: Heuristics and biases. Science 185, pp.1124-1131.

Wertenbroch, K., Soman, D., Chattopadhyay, A. 2007. On the Perceived Value of Money: The Reference Dependence of Currency Numerosity Effects. Journal of Consumer Research 34(1), pp.1-10.

Wilson, D., Houston, C., Etling, K. 1996. 'A New Look at Anchoring Effects: Basic Anchoring and Its Antecedents'. Journal of Experimental Psychology 125(4), pp.387-402.