Journal of Banking & Finance 34 (2010) 1759–1772

Contents lists available at ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

Price incentives and consumer payment behaviour

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ARTICLE INFO

Article history:
Received 28 January 2009
Accepted 1 February 2010
Available online 4 February 2010

JEL classification:
C35
D12
G20

Keywords:
Consumer choice
Retail payment systems
Price incentives
Loyalty programs

ABSTRACT

In this paper we estimate the effect of particular price incentives on consumer payment patterns using transaction-level data. We find that participation in a loyalty program and access to an interest-free period tend to increase credit card use at the expense of alternative payment methods, such as debit cards and cash. Interestingly though, the pattern of substitution from cash and debit cards differs according to the price incentive. An implication of the findings is that the Reserve Bank reforms of the Australian payments system are likely to have influenced observed payment patterns.

1. Introduction

Over the past decade, payment patterns in Australia have changed substantially. In line with most other countries, electronic means of payment, such as credit cards and debit cards, have grown strongly, while the number of personal cheques written per person has declined significantly (Fig. 1). Among electronic payment methods, however, there have been some interesting trends and trend reversals. For example, credit cards enjoyed remarkable rates of growth in the late 1990s, eventually overtaking debit cards as the most common form of non-cash payment. Subsequently, their rate of growth has tailed off and, more recently, there has been a switch back towards debit cards as the most common form of non-cash payment.

These changes in payment method use over a period of substantial reform provide *prima facie* evidence that a relationship exists between price incentives and the use of particular payment methods. The aggregate data, however, are not sufficient to make more than tentative conclusions about this relationship. Data on the payments behaviour of individuals offers the prospect of obtaining a more nuanced and accurate view of the influences on payment patterns.

As part of its 2007/08 review of its card-payment reforms, the Reserve Bank of Australia collected detailed data on the transaction behaviour of a broadly representative sample of 662 Australians over a two-week period in 2007. These data provide the first comprehensive transaction-level study in Australia of payment methods used by individuals, including, importantly, cash. In this paper, the data collected from this study are used to estimate econometric models of the holding of credit cards, and the use of credit cards, debit cards and cash. We use these data to examine a number of aspects of consumer payments. In particular, we consider what effect loyalty programs have on the choice of payment instruments and examine the patterns of substitution between credit cards, debit cards and cash as a result of these programs. We conduct similar analysis on the effect of access to an interest-free period.

The remainder of the paper is structured as follows. In Section 2, we provide an overview of aggregate trends in the Australian payments system over the past decade and some background on the Reserve Bank of Australia's reforms. Section 3 examines previous studies related to our paper. Section 4 discusses the data. Section 5 outlines the modelling framework and discusses the results, particularly in relation to price incentives. Section 6 concludes.

2. The Australian payments landscape

The main payment instruments available to Australian consumers are similar to those in other industrialised countries.[1] One unusual feature of Australian payment patterns until quite recently,

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[1] Further details on these payment instruments and their uses can be found in Emery et al. (2008).

0378-4266/$ - see front matter
doi:10.1016/j.jbankfin.2010.02.001

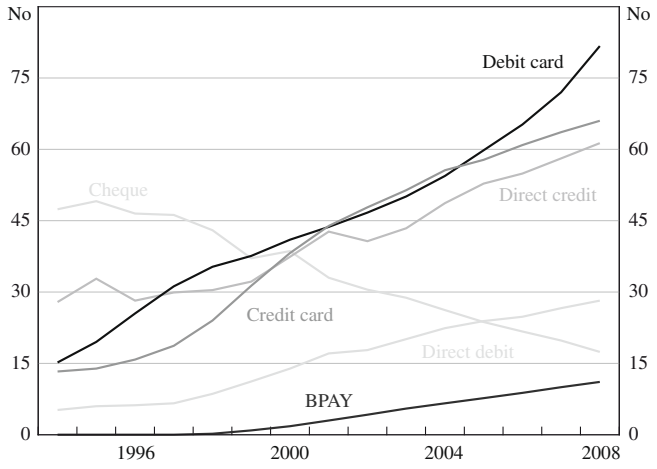

Fig. 1. Number of non-cash payments per capita (per year). Note: Debit and credit card data prior to 2002 have been adjusted for a break in the series due to an expansion of the retail payments statistics in 2002. *Source:* ABS; APCA; BPAY; RBA.

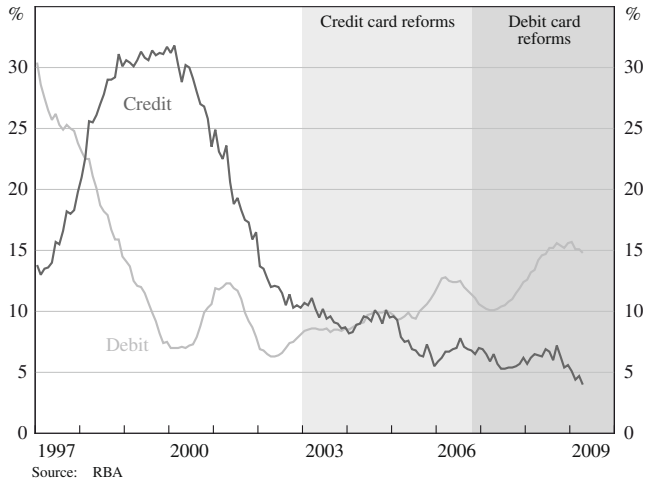

Fig. 2. Number of card payments (year-on-year growth). *Source:* RBA.

however, has been the strong growth in credit card use, relative to debit card use.[2]

One factor that is likely to have contributed to this trend in Australia was the pricing structure of the credit card and the domestic debit card (EFTPOS) systems, which differs somewhat from many other countries. For many Australian consumers, the effective price of using a credit card to make payments was less than that of using EFTPOS (Australian Competition and Consumer Commission and Reserve Bank of Australia, 2000). For example, at the time of the Reserve Bank of Australia's initial investigation of credit and debit card systems in 2000, an EFTPOS transaction incurred a cost of around $0.50 once a number of fee-free transactions had been made each month. In contrast, some consumers were effectively paid to use their credit card via the interest-free period and loyalty program rewards. These loyalty program rewards were quite generous; an average expenditure of around $12,400 earned a $100 shopping voucher in June 2003.[3] Hence, combined with an interest-free period (typically up to 55 days), the effective price for a $100 credit card transaction for a transactor with a loyalty program, prior to the reforms, was around −$1.30.[4]

One important factor affecting the pricing of these two systems is interchange fees – the fees paid between the merchant's and cardholder's financial institutions (the issuers) each time a transaction is made. In Australia, the average interchange fee in the credit card system has been, and continues to be, substantially higher than the interchange fee in the EFTPOS system. Prior to the reforms, the average interchange fee in the MasterCard and Visa credit card schemes was around 0.95% of the transaction value (paid to the issuer). Similar interchange fees also applied for the Visa Debit system (the only scheme debit system then in operation). In contrast to most other countries, in Australia the interchange fee in the EFTPOS system flows in the opposite direction – from the cardholder's financial institution to the merchant's financial institution – and was around $0.20 per transaction prior to the reforms. Not surprisingly, this structure of fees provided very little incentive for issuers to promote or price the domestic EFTPOS system attractively to cardholders.

The Reserve Bank of Australia was concerned that the relative levels of interchange fees between credit and debit cards, was not contributing to an efficient payments system. Some particular concerns were that the relative prices to cardholders for card payments did not generally reflect relative costs and interchange fees were not subject to the normal forces of competition. In addition, price signals to cardholders were distorted by credit card schemes imposing rules that did not allow merchants to surcharge at the point of sale. Hence, based on its legislative mandate to promote efficiency and competition in the payments system, the Reserve Bank of Australia's Payments System Board introduced a number of reforms to debit and credit card arrangements, beginning from the start of 2003. These included setting interchange fee benchmarks for the credit card, debit card and EFTPOS systems, and removing scheme rules that prevented merchants from surcharging.

These reforms have contributed to changes in effective prices facing card users. For credit cards, the reforms have had a number of effects, including: a reduction in the generosity of loyalty program rewards, with an average spend of $16,700 now required to obtain a $100 shopping voucher; an increase in average annual fees; and a gradual increase in the prevalence of surcharging at the point of sale.[5] For the EFTPOS system, the opposite has occurred, with most financial institutions now offering unlimited fee-free transactions for a small fixed account-keeping fee.

Fig. 2 shows growth in credit and debit card payments during this period of significant payments system change. Although some slowing in credit card payment growth was inevitable from the rapid pace experienced over the late 1990s, there appears to have been a shift in the relative growth in the two card payment instruments that coincides with the shift in relative prices resulting from the reforms.

3. Consumer payments literature

The academic literature on consumers' use of payment methods has grown considerably in recent times.[6] Earlier literature in this

[2] Unless otherwise separately identified, credit cards includes credit/charge cards from the MasterCard, Visa, American Express and Diners Club schemes, and debit cards include cards from the domestic EFTPOS system and the MasterCard and Visa debit schemes.

[3] These are the earliest data available and are sourced from bank websites for the following cards: ANZ Telstra Rewards Visa card; Commonwealth Bank MasterCard Awards card; National Australia Bank Visa Gold card; and Westpac Altitude MasterCard.

[4] Reserve Bank of Australia (2008b). A transactor is a credit card holder who pays their bill in full each month and, thus, has access to an interest-free period. In contrast, a revolver is a credit card holder who uses the credit facility of a credit card and incurs an interest charge for each transaction made on the credit card. Revolvers likely faced a positive price for using their credit card because of interest charges.

[5] Reserve Bank of Australia (2008a, 2009).

[6] Scholnick et al. (2008) provides a more wide-ranging survey of the literature on the economics of credit cards, debit cards and Automatic Teller Machines (ATMs).