

Bangor Business School

Working Paper



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BBSWP/14/01

The role of implicit costs and product quality in determining the customer costs of using personal current accounts

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June, 2014

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Acknowledgements

We would like to acknowledge financial assistance from Friends Provident Charitable Foundation, helpful comments provided by Rhys ap Gwilym, Robert Hudson and José Manuel Liñares-Zegarra and research assistance from Nia Williams. All errors remain the responsibility of the authors.

Abstract

This study examines whether the provision of an overdraft facility in personal current or checking accounts affects the customer costs of using such accounts in a free banking system. This assessment informs the wider debate as to whether exercising overdraft facilities is a significant factor in paying for current account use within ‘free banking’ systems. A UK data set of 222 current accounts, recorded monthly between 1995 and 2011 is used in combination with interest rates from 1,200 instant access deposit accounts offered contemporaneously by the same firms supplying current accounts. We use a panel framework to undertake the econometric analysis encapsulating contemporaneous correlation amongst UK current accounts. Our results do not support predictions that cross-subsidies flow from overdraft users to other current account customers. Both the quality of current accounts and the implicit costs of current account use arising from low current account deposit interest rates are significant features of this market and influential in the determination of customer costs. It is proposed future policy work needs to acknowledge the significant role of product quality and depositor inattention in the customer costs of current account use as much as concerns with overdraft use.

Key words: Checking accounts, Current accounts, Contingent charges, Implicit costs, Interest rate setting, Overdrafts.

G21 - Banks; Other Depository Institutions; Micro Finance Institutions; Mortgages

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1. Introduction

Does offering an overdraft affect the customer costs of using personal current accounts (also termed checking accounts) in a ‘free banking’ system? This question is important to address as there have been repeated accusations that overdraft users subsidise other personal current account customers. For example Armstrong and Vickers (2012) report *‘financially constrained customers pay contingent fees which help fund the free service offered to those in credit - (this) might appear to some as a kind of “reverse Robin Hood exercise”’* (p.479)¹. These sentiments have also been raised repeatedly by legislators and regulators across the globe. In the USA the Consumer Financial Protection Bureau (2013, p.18) reported *‘... consumers from potentially vulnerable groups may shoulder a disproportionate share of NSF (non-sufficient funds) and overdraft fees and checking account costs’*. The Australian Senate report on competition in retail banking (2011, paragraph 4.69) also reported contingent bank fees from overdraft use may fall disproportionately on the poor and *‘poorer customers who do pay fees subsidise their wealthier counterparts on a per transaction basis’*. Similarly in the UK, the House of Commons Treasury Committee (2011, paragraph 80) reported *‘... so-called free banking has important distributional consequences. A minority of consumers, often those on lower incomes, pay explicit charges associated with overdrafts. This results in high prices and poor outcomes for a sub-set of consumers. Meanwhile, other consumers, often on higher-incomes do not pay explicitly for their current account provision’*.

An assumption underlying this emotive debate is that personal current accounts in ‘free banking’ systems are financed by customers using overdraft services disproportionately. This view has arisen as overdraft lending has reached high levels in many nations, such credit is incurred by the inattentive and vulnerable (Financial Conduct Authority 2014) and these services are often assumed to be used disproportionately by the poor. If the assumption that overdraft lending is cross-subsiding other current account services is reliable we would expect the customer costs of using payment and deposit services (hereafter termed base services) within current

¹ Many other academics have also reported the presence of a distributional cross-subsidy in current or checking account markets. For example Campbell *et al* (2010) stated *‘consumers may choose a bank account with “free” checking, underestimating the extent to which they will pay penalty fees for overdrawing their accounts in the future. Such lack of self-knowledge leads to several problems. First, naïve consumers may purchase too many bank services because they underestimate the total cost to them. Second, banks compete away the excess profits they obtain through overdraft fees by keeping base charges low on checking accounts. This implies that naïve consumers cross-subsidize sophisticated consumers who don’t overdraw their accounts.’* (p.11). In a similar vein, Mullineux (2009) reports that *‘free banking’* is *‘founded on the cross-subsidisation of high payments usage, low balance users (young professionals) by low payments usage, high balance users (elderly widows)’* (p. 462). Work from policy reports also reports current account penalty fees are not equally shared between customers. For example in the Australian context overdraft costs *‘are disproportionately borne by those who can least afford to pay them, namely low income customers’* (Rich 2004, p.11).

accounts which offer an overdraft facility to be lower relative to using base services within current accounts which do not offer an overdraft facility.

In this study we test this condition using UK pricing and product information on 222 personal current accounts offered between 1995 and 2011 and 1,200 deposit accounts offered contemporaneously by the same firms. From a descriptive assessment and a regression model, we report the provision of an overdraft facility is significantly associated with the customer costs of using base services in current accounts. The direction of this relationship is not, as a widely predicted, negative from overdrafts services to other current account users; the presence of an overdraft facility has a positive influence on the costs of customers using current account base services. This assessment incorporates the implicit or inertia costs of current account use, where inattentive customers opt to accumulate large current account deposits and aspects of product quality. The difference between this empirical finding and current regulatory, policy and theoretical contributions indicates further analysis is required and policy makers should not assume a redistributive cross-subsidy operates in this important retail banking market.

Examining this question is timely as while a diversity of approaches are used to price personal current accounts internationally, the ‘free banking’ pricing model is observed to be dominant in the UK, it is used increasingly in Ireland, Australia and the USA. In this payment model, the customer pays for current account base services indirectly and compensates the banks directly for overdraft use through contingent fees and charges. The indirect costs of using base services include customers depositing funds in current accounts and receiving relatively low levels of interest and the payment of merchants or interchange fees by retailers (see Schmiedel *et al.* 2012). Regulators and legislators in Australia (Australian Senate 2011), the European Union (European Commission Directorate-General for Competition 2006; Commission of the European Communities 2009), Ireland (Central Bank of Ireland 2012), the United Kingdom (Competition Commission 2008; Office of Fair Trading 2008, 2010a, 2010b, 2011, 2013 [hereafter OFT]; House of Commons Treasury Committee 2011) and the USA (Federal Deposit Insurance Corporation 2008; Consumer Financial Protection Bureau 2013) have all reported concerns with the provision and the pricing of personal current accounts and associated overdraft services within a ‘free banking’ context. While, this international policy discussion has been accompanied by notable theoretical (Armstrong and Vickers 2012), legal (Whittaker 2011) and US empirical contributions (e.g. Fusaro 2008; Stango and Zinmann 2009a,b; Fusaro and Ericson 2010), there is a paucity of empirical evidence examining how current accounts services are priced in nations where ‘free banking’ is the dominant pricing model.

The study is divided into five sections. After this introduction, academic literatures are examined. In the third section the data and empirical design are introduced and the results are discussed in the fourth section. The conclusions and implications of the study are then provided.

2. Literature review

In light of the preceding discussion, any literature review of personal current account and overdraft costs could consider a diversity of concerns and for compactness we only examine two areas. Initially we review the developing theoretical literatures pertaining to contingent charges and how these have been applied in personal current account markets. Secondly, the empirical work undertaken on the provision of, demands for and the pricing of personal current account services are outlined.

2.1 Theoretical literature on contingent charges and current account pricing

Contingent costs, such as overdrafts charges, are frequently applied to goods and services purchased in addition to and after, a primary or base good or service. While contingent charges provide pricing efficiencies for firms allocating costs to those customers using additional services, they also present challenges; particularly when firms can exercise market power over an aftermarket.

Shapiro (1995) reports four circumstances when market power within aftermarkets develops. Initially, customers may be surprised by firms unexpectedly raising prices in aftermarkets; an outcome leading customers to switch provider when possible. Secondly, if customers are poorly informed and fail to account for the costs of using aftermarkets due to optimism or the costs of comprehending charges, firms can maximise profits from an aftermarket. This may result in firms escalating competitive actions in the primary market to obtain additional aftermarket customers (Bennett 2011). Third, when firms have limited ability to make credible or binding price and quality commitments at the time of the primary product/service purchase, there will be incentives for firms to maximise profits in aftermarkets. Lastly, if the firm is able to exclude rivals from aftermarkets, the ability to price discriminate is enhanced.

More recently concerns have developed that firms exaggerate customers' decision making biases through contingent charging. This is undertaken by making information on contingent charges hard to find, difficult to

assess and using a challenging pricing format. This softens competition in aftermarkets making product comparison more challenging, relaxing the degree of product substitution and raising switching costs.

These assumptions and outcomes are central to an expanding theoretical literature assessing the market interaction between profit maximising firms and ‘boundedly rational’ consumers. This work considers the firms’ strategic use of confusing pricing schemes to enhance consumers’ decision errors. For example Gabaix and Laibson (2006) indicated circumstances where exploitation of customers’ weakness in comprehension and decision making by firms may persist under competitive conditions in the joint pricing of base and add-on goods. Subsequently persistent forms of cross subsidy may flow from profits achieved on add-on goods purchased by less informed customers, to subsidise base goods, purchased by all customers. As financial services markets are characterised by limited consumer comprehension and financial literacy (FSA 2006, Worthington 2007, Agarwal *et al* 2008) and personal current accounts markets are associated with high switching costs and employ a diversity of pricing formats, these concerns appear pertinent.

Despite the appositeness of personal current accounts to the preceding discussion theoretical links between this specific market and theory have been piecemeal, with the notable exception of Armstrong and Vickers (2012). These authors examined the pricing of overdrafts viewing these services to be a tied aftermarket complimentary yet distinct from primary or base personal current account services (deposits and payment services). The model assumes customers have to take inefficient actions to avoid paying high charges, small print or confusing pricing formats for overdraft use. Diligent customers’ which can observe this small print take such actions and choose a current account with the lowest overall usage costs. Distinctly naïve customers can be misled by small print and confusing pricing formats and will therefore choose the lowest cost provider of base personal current account services (deposit and payment services) and pay more additional or contingent charges for overdraft use. These differential actions for naïve and diligent customers results in two potential outcomes. If there is a large proportion of naïve customers and the aftermarket prices are high, firms will actively compete for the primary market of deposits and payment services and charge more for additional overdraft services. These actions result in overdraft use subsidising the current account base services and naïve customers subsidising diligent customers. This outcome raises concerns as to inefficient patterns of pricing being created and the redistribution of costs between customer groups. Alternatively, if there are enough diligent customers or low enough contingent charges then efficient contract terms will develop and no cross-subsidy will emerge.

2.2 *Empirical literature on pricing current accounts*

To date there is a scarcity of non-US academic work examining current account and overdraft pricing. In the UK past examinations of pricing in the current account market have generally addressed concerns other than the costs of current account use. These studies have used current account pricing to contribute to topics including the transmission of monetary policy (e.g. Heffernan 2002), the switching of current accounts (e.g. Gondat-Larralde and Nier 2006; Morgans 2010) and financial exclusion (e.g. Devlin 2005). A limited number of studies have also examined current account pricing in Canada (Seldon and Solmer 1996), the Netherlands (Cunha *et al.* 2011) and Scandinavia considering topics including the pricing of transactional and deposit services (Merrigan and Nomandin 1996; Klee 2008; Tin 2008) and the costs of payment services used within current accounts (Humphrey *et al.* 2003; Guibourg and Segendorff 2007)². Within the Australian context Worthington (2007) examines the distribution and comprehension of current account characteristics and pricing formats.

In the USA the academic literature is more extensive, examining pricing under systems where payments are made for payment service use, such as the number of cheques written (e.g. Ederington and Skogstad 1977; Mingo 1980; Osborne and Wendel 1981), assessing credit service demands (Boyd 1976; Bar-Ilan 1990), customer switching (Kiser 2002) and convert pricing (McGovern and Moon 2007). More recently overdraft pricing and use has been examined using transaction data from individual customers' current accounts. Stango and Zinman (2011a,b) and Fusaro (2008) employed a large proprietary data set of US customer current account records for a limited time period and a smaller data set over a ten year period, respectively. All these studies support the conjecture that overdraft use is primarily accidental. Stango and Zinman (2011) further report that while only 31% of current accounts have had at least one overdraft fee, a further 72% of the current accounts had been very close to over-drafting behaviours and displayed financial fragility. Similarly, Fusaro (2008) reports that on average one in five customers incur an overdraft each year and over a 10 year period 46.2% of customers incur overdrafts.

3. **Data and Methodology**

To address the research question that a current account offering an overdraft facility or not influences the customers' costs of using base current account services (deposits and payment services), we undertake a

² While discussion of the wider functions of the payments system is beyond the scope of this study, reviews are provided for the UK and Nordic nations by Milne (2006) and for the USA by Gerdes (2008).

descriptive assessment and employ a regression model. The descriptive assessment examines the relationships between the cost of current account use, services received and the availability of overdraft provision. The regression model is used to examine statistical significance of the presence or otherwise of an overdraft service on the costs of personal current account 'base' services in the presence of other variables used to denote differential quality of current accounts and payments services provided.

3.1 Assumptions and Concepts

In order to undertake the assessment three assumptions are made and require explanation. Initially the costs of using deposit and payment services within personal current accounts are defined as base costs. For reasons outlined in the data section, overdraft costs are not directly quantified and the presence or otherwise of an overdraft service are used to reflect the cost or benefit of providing this service.

Second, to accommodate the opacity of charging on free banking current accounts, we measure of the implicit or inertia cost of current account use. Implicit costs are those costs of using current accounts which are not clearly linked to a form of action and include the relatively low yield received on current account deposits relative the yield received on funds deposited or invested in different financial services. While implicit costs are commonly recognised as a major cost to current account users (e.g. Stango and Zinman 2009a; Central Bank of Ireland 2011; Independent Commission on Banking 2012) these costs have either been overlooked or quantified relative to the market rate of funds in past assessments. In this study we adopt a distinct approach by calculating the actual costs and benefits of using current account base services (including the interest provided on current account deposits and the costs of any packaged fees) relative to the average interest receivable by depositing the credit balance in an average instant access deposit account offered contemporaneously by the same firm providing the current account. This enables comparison of the costs of a customer opting to accumulate deposits within their current account or choosing to deposit or sweep funds into an average instant access deposit account offered by the same bank. This approach accommodates both the international promotion of automatic transfers between current and deposit accounts to enhance interest payments and reduce overdraft use by banks (Consumer Financial Protection Bureau 2013) and the customer costs arising due to inattention and inertia (see Anderson *et al* 2014, Stango and Zinman 2014).

A third assumption underlying the analysis is that the costs of using base services are determined by the how the current account is used by a customer. Optimally customer use is defined using current account transactions data (see Stango and Zinmann 2009a,b). As this data is not publically available in the UK we consider three representative customers; an approach previously used by regulators (e.g. Competition Commission 2008; OFT 2008; Central Bank of Ireland 2011; Independent Commission on Banking 2011). In total the three representative customer definitions which use both base and overdraft services are outlined.

To reduce subjectivity in defining customer use of current accounts we adopt one OFT (2008) classification of unauthorised overdraft use derived from an assessment of current account transaction data. We also follow the Competition Commission (2008) by interviewing senior bankers with a remit for current account provision to develop further representative customers. Interviews were therefore undertaken with four senior representatives from a very large and a small provider of UK personal current account services and led to two more representative customer definitions which incorporate overdraft use. These definitions are outlined in Table 1.

Table 1: Representative customers and use of current accounts

| Label | Group | Description | Credit balance | Credit days | AOD Balance | AOD Days | UOD Balance | UOD Days |
|----------|--|---|----------------|-------------|-------------|----------|-------------|----------|
| A | Typical customer with unauthorised overdraft | A typical average credit balance and an unauthorised overdraft | £830 | 345 | 0 | 0 | £40 | 20 |
| B | High credit customer with overdraft use | A high credit customer for all except 3 weeks a year when an authorised overdraft is used | £2,000 | 344 | £500 | 21 | 0 | 0 |
| C | Marginal customer with overdraft use | In credit for all except 3 weeks a year when an authorised overdraft is used | £400 | 344 | £800 | 21 | 0 | 0 |

Notes AOD = authorised overdraft; UOD = unauthorised overdraft

3.2 Data

The empirical analysis employs data from Moneyfacts PLC for the retail personal current account market and the instant access deposit market. This data was accessed from paper based magazines and transformed into a

useable dataset for this project. The data is comprehensive³, includes current accounts with and without usage or packaged fees, basic bank accounts and accounts offering payment and deposit services both with and without an overdraft facility and is obtained monthly over the 1995 to 2011 period. These accounts are provided primarily by high street banks, yet also by building societies, small banks, foreign banks and other firms including insurers and retailers. For current account deposit services we record four different tiers or levels of interest payable for a range of sums deposited including:

- i) Equal to and greater than £1 deposited and less than £500,
- ii) Greater than or equal to £500 deposited and less than £1,000,
- iii) Greater than or equal to £1,000 and less than £2,500, and,
- iv) Greater than or equal to £2,500 and less than £5,000.

While some current accounts offer higher rates of interest for sums greater than £5,000 deposited, these are not available. The frequency of interest rate payment is also recorded and is used to ensure any calculations undertaken match the frequency used within the current accounts (i.e. monthly, quarterly and annually). Where a current account requires an access fee (termed packaged fees) their scale and frequency of payment are recorded. Data is also recorded as to how current accounts are distributed and what specific payment services are included in this product. These product characteristics are not comprehensive due to the availability of data, yet assist in indicating the differential quality of current accounts offered to market. We acknowledge that other forms of distribution, payment services and add-on services (such as travel insurance frequently provided within a current account package of financial services) are not included in this assessment.

While considerable data on overdraft interest rates, buffers, arrangement and usage fees has been obtained for authorised and unauthorised overdrafts, we have been unable to collect a full set of data relating to additional special fees for customers using unauthorised overdrafts, such as letter costs, rejected direct debit and cheque costs. As the omission of unauthorised overdraft charges will understate the level of unauthorised overdraft use costs and we do not wish to interpolate data, these values are not included in this assessment.

³ The data provided by Moneyfacts PLC is also used by financial and competition law regulators in the UK including the Bank of England and the Competition Commission in addition to providing a key source of comparison for many UK based financial institutions and financial advisors. This data has been provided since 1989, yet has only been provided in a consistent format for personal current accounts since 1995.

Table 2. The expected relationships between personal current account (PCA) base costs and product features.

| Bank or Product Feature | Influence on Personal Current Account Base Costs |
|--|--|
| Current account offered with an overdraft | The direction of the relationship depends on whether offering an overdraft positively or negatively influences the customer's costs of using current accounts. |
| Average wholesale cost of funds | The average base or policy rate issued by the Bank of England for the month considered. If the market is linked to the cost of funds then a significant positive influence is expected. |
| Account sweeping | If customers have a facility to automatically sweep excess current account funds to another financial account (such as a deposit account), the size of current deposits will be curtailed. This will therefore be costly for the bank and have an expected positive influence on the base costs. |
| Cheque book | The ability to use cheques is additional convenience for customers, yet costly to provide. Therefore a positive relationship is expected. |
| Unlimited direct debit | This indicates if there are no restrictions on the use of the direct debit system through the UK BACS payment system. This is expected to exert a positive influence on base costs. |
| Distribution of PCA branches, internet and telephone | The use of one or a combination of distribution channels are expected to have differing influences on base costs depending on their costs to provide. Branches are widely viewed to be the highest cost and internet provision the lowest cost forms of distribution. |
| Minimum credit balance. | If the current account requires customers to pay their primary income into this account. This requirement is expected to have a negative influence on base costs as it will be associated with a higher use of the deposit function, yet also may add to the costs of payment services. |

Using the approach specified above, 'representative' customers are used to calculate base costs of current account use. The Moneyfacts data set is provided monthly over a 17 year period, for 345 current accounts offered by 71 firms, which are owned by 61 parent companies. This data is truncated to only include those current account services for which current account and deposit observations are available and where current accounts have been offered for two years or more removing current accounts offered briefly for marketing purposes such as obfuscation (Carlin and Manso 2010) or bait and switch activities (Lazear 1995). This provides a contiguous data set of 222 products offered by 42 firm and 34 parent firms; in total 16,667 observations. The data on instant access deposits contains 56,909 monthly observations of 1,200 instant access deposit accounts. This data is used to estimate implicit cost of using base services of the selected current account accounts. Descriptive statistics of fees and interest rates used to calculate base costs of current account use and implicit costs of current account use are presented in Table 3.

The analysis is undertaken at the product rather than the firm level. This decision is informed by the relatively frequent merger and acquisition of current account providers over the sample period (see DeYoung *et al.* 2010). This has resulted in many current account products changing ownership yet continuing to operate with the same

brand name and product features. The parent firms (ultimate owners) marketing these current accounts are listed in Appendix 1.

Table 3 outlines descriptive statistics of the variables employed and indicates why the approach to quantify implicit prices is followed. In the upper panel of the table we report the mean and dispersion of current account pricing, product features, forms of distribution and the average interest rates of the instant access deposit accounts offered by the same firms providing current accounts. In total, 160 current accounts or 71% of the current account observations have an overdraft facility and 62 current accounts do not have an overdraft facility. Three of the current account products altered the availability of overdraft facilities throughout the sample period. The average duration of a current account in the sample is 75 months with a standard deviation of 44 months. The level of interest provided for current accounts is far lower than the average rates provided on the associated instant access deposits. Packaged fees are levied on 76 current accounts (67% of observations). The average overall fee is £5 and £18.31 per month for current accounts requiring fees. The availability of payments services also vary across the sample. Overall 24% of observations have account sweeping, 78% have a cheque book and 98% have unlimited direct debits. Further, 89% of current account observations available through branches, 83% over the telephone and 67% are available via the internet.

The lower panel reports the different average benefits or costs of holding deposits for the three representative customers. These costs or benefits can be recorded relative to three sets of interest rate: a) the interest rate of the current account deposit service, b) the average interest rate of an instant access deposit account and c) the prevailing base or policy rate. The yield from depositing three levels of funds (£830, £2,000 and £400 for representative customers A, B and C) is calculated annually. These yields vary from very low returns on current account deposits to higher returns from average instant access deposits and the highest returns from assumed depositing at the base rate. The implicit customer costs of using a current account deposit relative to sweeping these funds into an instant access deposit account or depositing these funds at the base rate are then recorded. It is observed that these costs are far higher when we consider the use of base rates. As this measure of implicit cost may be an overestimate and access to retail deposits offering the base rate is unusual, the level of implicit cost employed is the average monthly instant access deposit rate for each individual parent firm offering current accounts.

Table 3: Descriptive Statistics for Personal Current Accounts (PCA).

| | | Mean | Std. Dev. | Min. | Max. | |
|---|---|--------|-----------|---|--------|-----------|
| Sample features | PCA Offered with Overdraft Services (%) | 71.0 | 45.4 | 0 | 1 | |
| | PCA Product Tenure (months) | 101.23 | 50.90 | 24.00 | 204.00 | |
| Personal current account (PCA) pricing | Interest rate £1 deposited (%) | 0.66 | 1.31 | 0.00 | 9.57 | |
| | Interest rate £500 deposited (%) | 0.68 | 1.33 | 0.00 | 9.57 | |
| | Interest rate £1000 deposited (%) | 0.77 | 1.39 | 0.00 | 9.57 | |
| | Interest rate frequency (p.a.) | 6.82 | 5.07 | 1.00 | 12.00 | |
| | Fee (£) | 5.01 | 17.17 | 0.00 | 195.00 | |
| | Fee frequency (p.a.) | 2.98 | 5.14 | 0.00 | 12.00 | |
| Product features | Account sweeping (%) | 24.5 | 43.0 | 0.00 | 1.00 | |
| | Cheque book (%) | 78.4 | 41.2 | 0.00 | 1.00 | |
| | Unlimited direct debits (%) | 95.0 | 22.8 | 0.00 | 1.00 | |
| | Minimum credit balance (£) | 101.17 | 547.92 | 0.00 | 5000.0 | |
| Distribution (%) | Branch | 89.0 | 31.3 | 0.00 | 1.00 | |
| | Telephone | 83.4 | 37.2 | 0.00 | 1.00 | |
| | Internet | 67.1 | 47.0 | 0.00 | 1.00 | |
| Instant Access Deposit Interest Rates (%) | £500 deposited | 2.22 | 1.23 | 0.03 | 5.75 | |
| | £1000 deposited | 2.30 | 1.26 | 0.03 | 5.75 | |
| | £2500 deposited | 2.47 | 1.27 | 0.03 | 5.75 | |
| Customer | Annual Yields | Mean | Std. Dev. | Annual measures of implicit cost (without fees) | Mean | Std. Dev. |
| A | PCA deposit rate (£) | 5.44 | 10.65 | PCA deposit cost relative to instant access deposit (£) | 12.24 | 12.94 |
| B | | 14.80 | 26.81 | | 29.1 | 31.5 |
| C | | 2.50 | 5.06 | | 5.12 | 6.06 |
| A | Instant access deposit rate (£) | 17.68 | 9.88 | PCA deposit cost relative to base rate (£) | 27.8 | 19.18 |
| B | | 43.90 | 24.20 | | | |
| C | | 7.62 | 4.90 | | | |
| A | Base rate (£) | 33.24 | 17.05 | | 65.05 | 46.26 |
| B | | 79.86 | 40.96 | | | |
| C | | 15.97 | 8.19 | | | |

3.3 Methods

The descriptive assessment examines whether the current account offers an overdraft facility or otherwise is associated with costs of using base services for the three representative customers and the ‘quality’ of current account services. The first part of this assessment is undertaken overall and for three time periods (1995-99, 2000-04 and 2005-11). We then use quartiles denoting relative customer costs to examine current accounts which do and do not offer an overdraft facility. If overdrafts are influential in cross-subsidising base current account services, it is expected more current account observations with an overdraft facility will be recorded in

the lowest cost quartile. Similarly, a higher percentage of observations for current accounts without an overdraft facility would be expected in the highest cost quartile. This assessment is reported in Table 4.

High costs of using base current account services may also reflect differences in the quality of current accounts. Therefore we examine if variables denoting ‘quality’ of current accounts and the base cost of using the current account are associated. This is undertaken overall and using quartiles denoting relative customer costs. In the quartile analysis we discriminate between higher and lower quality by counting the number of forms of distribution and total number of current account payment services offered on each current account observation. When a current account is available through all forms of distribution and offers all the possible payment services it is denoted as having the highest quality. Where a current account is offered through a limited number of distribution channels and provides few payment services is judged to be of a lower quality. This examination of whether offering an overdraft facility or otherwise is associated with current account quality is reported in Table 5.

The regression ‘test’ follows the descriptive assessment and is used to determine if the availability of an overdraft facility in the current account has an influence on the costs of using current account base services. If overdrafts are used to cross-subsidise base services then a dummy variable indicating whether the current account observation has or does not have an overdraft facility would be expected to be significant. If the presence of an overdraft facility provides a cross-subsidy to the cost of using base services, then there is a reduction in usage costs and the expected coefficient sign will be negative. If the presence of an overdraft facility is costly for a bank to provide, cross-subsidies will flow from base services to overdrafts and the expected direction of the coefficient would be positive.

The costs of using current account base services for the three representative customers are also assumed to be determined by a range of other factors including the wholesale cost of funds, the services offered within the current account, product restrictions and how the current account is distributed. The panel data model to be estimated is written as:

$$Y_{it} = \alpha_i + X_{it}\beta + f_t + u_{it} \quad (1)$$

where i ($i = 1, 2, \dots, n$) denotes current account products, t ($t = 1, 2, \dots, T$) denotes months, Y_{it} is the it^{th} observation of the dependant variable (current account base costs) and X_{it} is the it^{th} observation of the explanatory variables outlined in Table 2. β represents the coefficient of the explanatory variables, f_t represents

the time effects in the model and the error term u_{it} may be written as $u_{it} = \mu_i + \nu_{it}$ where μ_i represents the time invariant individual specific effects and ν_{it} denotes the remaining error.

To determine the appropriate estimator for the regression we undertake a number of steps. First, as financial institutions and their subsequent product decisions are exposed to similar kinds of systematic shocks, we test whether cross-company residuals are contemporaneously correlated. By computing the Breusch and Pagan (1980) Lagrange Multiplier (LM) statistic, λ_{LM} we test for contemporaneous error correlations using:

$$\lambda_{LM} = T \sum_{i=2}^n \sum_{j=1}^{i-1} r_{ij}^2, \quad (2)$$

where r_{ij}^2 is the squared ij^{th} correlation coefficient of cross-company residuals. Under the null of no contemporaneous error correlations across the companies, the test statistic is asymptotically χ^2 distributed with $N(N-1)/2$ degrees of freedom, where N denotes the number of companies in the panel. The p-value of the LM test statistic is zero, which rejects the null hypothesis, suggesting that the error series are contemporaneously correlated across all the products for each of the representative customers.

Secondly, the fixed effects panel estimator is not applicable to our econometric analysis because it does not encapsulate the contemporaneous correlation across the products in our sample. Also, panel estimators that capture endogeneity and joint determination of variables such as the Generalized Method of Moments estimator derived by Blundell and Bond (1998) are not relevant to our dataset. This is because a vast majority of our explanatory variables are dummies, which are by definition exogenous explanatory variables. We therefore adopt the Seemingly Unrelated Regression (SUR) econometric methodology in our empirical analysis.

4 Results

4.1 *The descriptive assessment*

The descriptive assessment is reported in two tables. Table 4 considers the influence of offering an overdraft on the costs of using base current account services (upper panel) and differences in usage costs in quartiles (lower panel). The differences between the ‘quality’ of current account services and whether a current account provides an overdraft facility are provided in Table 5. In the upper panel of the table, the differences between these costs

of using base services are indicated for accounts with and without overdraft facilities. In the lower panel the distribution of higher and lower 'quality' current accounts are recorded relative to whether the current account offers an overdraft facility or otherwise.

In Table 4 we observe in all cases when a current account is offered with an overdraft, the costs of using base current account services are higher. These differences are significant using T Tests. There is also a higher dispersion of customer costs when current accounts have an overdraft rather than when not. The assessment of the costs of using base services using quartiles supports this general finding. For the majority (75%) of cells, there are relatively more observations from accounts with no overdrafts rather than otherwise in the lowest cost quartile. For the highest cost quartile there are relatively more observations for current accounts offering an overdraft facility in all cases. We also test if these distributions of observations are independent using a χ^2 test; in all cases independence is rejected.

In Table 5 we examine the differences between the 'quality' of current accounts with whether an account offers an overdraft facility or otherwise. It is reported in all cases that more current account payment services are observed when an account offers an overdraft. Current accounts providing an overdraft facility are accessible through a greater number of distribution channels be these branch, telephone or over the internet, relative to current accounts not offering overdrafts. In all cases the differences between the occurrence of these product features and whether the account is offered with and without an overdraft are significant. The quartile assessment of distribution of higher and lower 'quality' current accounts bears out this observation and we see the highest quality quartile is overwhelmingly populated by current account observations offering overdraft facilities. The hypothesis that this distribution is independent is rejected in all cases using a χ^2 test.

Table 4: The influence of offering an overdraft facility on the base costs of using current accounts.

| | | Annual usage costs of base current account services | | | | | |
|---|----------|---|----------------|-------------------------|--------------|-------------------------|--------------|
| | | Customer | Mean | Std. Dev. | Min. | Max. | |
| All current accounts | | A | £46.406 | £69.246 | -£54.58 | £720.39 | |
| | | B | £63.265 | £72.158 | -£125.52 | £720.94 | |
| | | C | £39.286 | £69.597 | -£25.63 | £720.19 | |
| Current accounts offering overdrafts | | A | £57.577 | £71.938 | -£41.77 | £343.71 | |
| | | B | £74.103 | £75.010 | -£100.35 | £405.01 | |
| | | C | £50.871 | £72.235 | -£19.92 | £321.00 | |
| Current accounts not offering overdrafts | | A | £22.64 | £58.15 | -£54.58 | £720.39 | |
| | | B | £40.59 | £62.71 | -£125.52 | £720.94 | |
| | | C | £14.84 | £57.99 | -£25.63 | £720.19 | |
| Differences between accounts offering and not offering overdrafts | | Customer A | Customer B | Customer C | | | |
| T Tests | | 25.87** (0.00) | 22.88** (0.00) | 26.35** (0.00) | | | |
| | | Customer A | | Customer B | | Customer C | |
| Quartiles of base costs | | With Overdraft Facility | No Overdraft | With Overdraft Facility | No Overdraft | With Overdraft Facility | No Overdraft |
| Highest | 4 | 27.06 | 18.58 | 28.86 | 12.77 | 27.02 | 18.71 |
| Overall | 3 | 26.09 | 21.49 | 26.16 | 21.24 | 24.87 | 25.41 |
| | 2 | 25.77 | 22.50 | 26.44 | 20.35 | 23.62 | 29.46 |
| Lowest | 1 | 21.08 | 37.42 | 18.54 | 45.64 | 24.48 | 26.42 |
| | χ^2 | 89.70** | (0.00) | 255.15** | (0.00) | 25.87** | (0.00) |
| Highest | 4 | 13.03 | 0.32 | 29.94 | 11.23 | 34.09 | 6.88 |
| 1995-99 | 3 | 33.22 | 43.35 | 14.24 | 35.13 | 13.60 | 42.25 |
| | 2 | 22.45 | 37.34 | 26.44 | 33.54 | 20.26 | 35.92 |
| Lowest | 1 | 31.30 | 18.99 | 29.38 | 20.09 | 32.05 | 14.95 |
| | χ^2 | 296.33** | (0.00) | 346.53** | (0.00) | 735.39** | (0.00) |
| Highest | 4 | 34.52 | 2.50 | 34.12 | 3.41 | 34.34 | 34.34 |
| 2000-04 | 3 | 22.82 | 30.18 | 22.96 | 29.82 | 22.91 | 22.91 |
| | 2 | 12.20 | 16.24 | 20.15 | 36.52 | 20.18 | 20.18 |
| Lowest | 1 | 30.46 | 51.08 | 22.77 | 30.25 | 22.57 | 22.57 |
| | χ^2 | 1005.9** | (0.00) | 945.02 | (0.00) | 981.36 | (0.00) |
| Highest | 4 | 33.52 | 4.19 | 32.71 | 6.18 | 33.57 | 4.09 |
| 2005-11 | 3 | 21.00 | 34.77 | 21.81 | 32.81 | 19.72 | 37.91 |
| | 2 | 22.47 | 31.16 | 23.47 | 28.74 | 22.63 | 30.81 |
| Lowest | 1 | 23.00 | 29.88 | 22.01 | 32.27 | 24.09 | 27.19 |
| | χ^2 | 1610.7** | (0.00) | 1316.47 | (0.00) | 1753.33 | (0.00) |

Table 5: Relationship between offering an overdraft facility and current account ‘quality’.

| | | All accounts | | Accounts offering overdrafts | | Accounts offering no overdrafts | | T Tests Difference between with and without O/D | |
|---|--|--------------|-----------|------------------------------|-----------|---------------------------------|-----------|---|--------|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Average Wholesale cost of funds (%) | | 4.13 | 2.11 | 4.14 | 2.09 | 4.01 | 2.10 | n/a | |
| Account sweeping (%) | | 24.5 | 0.430 | 29.9 | 45.8 | 15.6 | 36.2 | 14.004** | (0.00) |
| Cheque book (%) | | 78.3 | 0.412 | 88.4 | 32.1 | 50.5 | 50.0 | 45.538** | (0.00) |
| Unlimited Direct Debit (%) | | 95.0 | 0.218 | 98.4 | 12.4 | 86.7 | 34.0 | 10.324** | (0.00) |
| Distribution of PCA through Branches (%) | | 89.0 | 0.313 | 90.7 | 29.1 | 84.6 | 36.2 | 4.289** | (0.00) |
| Distribution of PCA through Internet (%) | | 67.1 | 0.470 | 71.9 | 45.0 | 66.4 | 47.2 | 24.293** | (0.00) |
| Distribution of PCA through Telephone (%) | | 83.4 | 0.372 | 92.7 | 26.1 | 60.9 | 48.8 | 24.864** | (0.00) |
| Minimum Credit Balance (£) | | £101.17 | £547.92 | £7,568 | £56,754 | £244.20 | £793.31 | -18.244** | (0.00) |

| Quartiles of current account quality | | Overall | | 1995-99 | | 2000-04 | | 2005-11 | |
|--------------------------------------|----------|-------------------------|--------------|-------------------------|--------------|-------------------------|--------------|-------------------------|--------------|
| | | With Overdraft Facility | No Overdraft |
| Highest | 4 | 22.63 | 6.51 | 0 | 0 | 24.62 | 3.48 | 31.11 | 10.29 |
| | 3 | 32.69 | 20.27 | 0 | 0 | 42.76 | 16.93 | 41.13 | 28.49 |
| | 2 | 34.24 | 31.28 | 66.99 | 4.80 | 24.06 | 35.94 | 25.83 | 36.75 |
| Lowest | 1 | 10.44 | 41.94 | 33.01 | 95.20 | 8.56 | 43.64 | 1.93 | 24.46 |
| | χ^2 | 2428.80** | (0.00) | 936.53** | (0.00) | 1140.34** | (0.00) | 1523.39** | (0.00) |

4.2 The regression model

Within Table 6 we report the regression results. The coefficient for a personal current account offered with overdraft services is statistically significant at the 5% level for all representative customers. The direction of the relationship is positive in all cases indicating providing overdraft facilities adds rather than distracts from the costs of using base services. The regression model also indicates other factors have a statistically significant influence on the costs of using current account base services. The method of distributing current accounts positively influences the costs of using base services with statistically significant and positive coefficient values for all branch and telephone variables, yet not for internet distribution. The provision of payment services such as account sweeping, cheque books and unlimited direct debits also has a positive and significant influence on cost of using base services in all cases. Lastly, the influence of the base rate on the cost of using base current account services is statistically significant in two of the three representative customers and negative in all cases. This result may reflect the historically low base rates of recent years and the average customer cost of using base services rising with the increasing use of packaged current accounts charging fees. Lastly the fixed and time effects are significant, suggesting that the company and time-specific shocks differ significantly across the companies in our sample, justifying the use of the panel.

Table 6: Regression Results – Effect of offering an overdraft services on the cost of using current account base services

| Variable | SUR Estimates Customer A | | SUR Estimates Customer B | | SUR Estimates Customer C | |
|--------------------|-----------------------------|------------|-----------------------------|------------|-----------------------------|------------|
| Constant | 30.77 | (12.16)** | 15.53 | (5.53)** | 33.32 | (13.48)** |
| Overdraft Facility | 45.22 | (32.84)** | 41.62 | (28.68)** | 46.68 | (34.00)** |
| Base Rate | -4.62 | (-11.72)** | -0.07 | (-0.17) | -6.50 | (-16.52)** |
| Account Sweeping | 3.09 | (2.35)** | 4.15 | (3.00)** | 3.48 | (2.65)** |
| Cheque Book | -23.16 | (-14.07)** | -25.49 | (-14.80)** | -23.30 | (-14.20)** |
| Direct Debit | -11.44 | (-8.60)** | -5.50 | (-3.55)** | -11.44 | (-8.83)** |
| PCA Branch | 20.45 | (15.00)** | 27.64 | (16.63)** | 17.63 | (13.80)** |
| PCA Internet | 0.57 | (0.45) | 2.61 | (1.87)* | 1.21 | (0.97) |
| PCA Telephone | 15.55 | (11.17)** | 20.97 | (14.07)** | 14.11 | (10.19)** |
| Credit Balance | 0.018 | (8.81)** | 0.018 | (9.05)** | 0.018 | (8.79)** |
| a_i | | (0.00) | | (0.00) | | (0.00) |
| b_t | | (0.00) | | (0.00) | | (0.00) |
| SE | | 64.48 | | 68.15 | | 63.94 |
| R^2 | | 0.13 | | 0.11 | | 0.16 |
| Observations | | 16676 | | 16676 | | 16676 |

Notes: SE represents the standard error of the panel estimator. a_i and b_t are the fixed and time effects. The (.) are p values, (.) are t statistics, ** and * indicates significant at the 5 and 10% level respectively.

5. Conclusions

Despite the theoretical and policy importance of contingent charges, empirical examination of the operation and level of such pricing techniques is limited. Perhaps reflecting this lack of empirical consideration, the distribution of customer costs arising from contingent charges has become an issue of public, political and policy concern in some markets, and particularly in the provision of current accounts and overdraft services. In this market, policy makers, parliamentarians, regulators and theorists have all predicted the provision of overdraft lending in a 'free banking' system can lead to a cross-subsidy of all current account users by those customers opting to use overdraft services. This study empirically examines this prediction by testing whether a current account offering an overdraft facility or otherwise is associated with higher or lower costs of using current accounts base services.

The descriptive assessment of this research question reports the customer costs of using current accounts with an overdraft facility are higher rather than lower. This relationship is complicated by the 'quality' of the current account. Current accounts of a higher 'quality' providing more payment services and offered through more distribution channels are more costly to use. We therefore undertake a regression assessment of what factors influence the base costs of customer use of current accounts. It is reported that having an overdraft is positively associated with the customer costs of using current accounts. Many other factors also have a positive influence on current account costs including variables used to represent product quality and distribution.

These results do not concur with the widely predicted cross-subsidy of current account base services by overdraft users. The provision of current account services appear to be financed by inattentive current account customers which allow large deposits to accumulate in their current accounts as much as other sources. This relationship is also complicated by the differential quality of current accounts with current accounts offering overdrafts frequently offering more payment services through a wider range of distribution channels. The implications of this result are multifaceted.

Personal current accounts are used by 95% of the Australian (ANZ 2011) and 90% of the UK populations (OFT 2008); indeed across the European Union the ubiquity of these services is demonstrated by a customer base greater than that using telephone services, both mobile and fixed line, or even a gas supply (Commission of the European Communities 2009). These markets also contribution a significant proportion of bank revenue; in the case of the UK this is over 30% of all UK retail banking income (OFT 2008). When a market is this

economically and socially important, clarity and comprehension as to how customer costs are incurred and the efficiency of pricing is essential. Despite the general importance of personal current accounts much of the policy discussion in this market reflects the substantial levels of overdraft borrowing observed in many nations, the less ‘visible’ nature of this borrowing to many inattentive and less affluent users than other forms of borrowing (see Financial Conduct Authority 2014) and the often complex and potentially confusing format of overdraft pricing.

Policy developed internationally to address such possible cross-subsidies has focused on an assortment of concerns including the timeliness and clarity of information and empowering customers to opt into or from overdraft provision. For example, in the UK the Lending Code (2011)⁴ has included an expectation that personal current account providers will inform customers when they are about to enter into an unauthorised overdraft and provide the ability for customers to actively opt out of unauthorised overdrafts. Regulatory developments in the USA include the introduction of Regulation E (Electronic Fund Transfers) by the Federal Reserve Board (Federal Register 2010) prohibiting financial institutions from charging customers for overdrafts incurred from ATM and one-time debit card transactions unless consent is obtained or the customer opts to pay such fees. While such ongoing policy efforts to enhance customer information and choice are welcome, we suggest these should be accompanied by measures to reduce the implicit and inertia costs of current account use. Specifically, the default enrolment of customers into systems of automatic redirection or sweeping of funds to and from deposit accounts will lessen implicit costs and minimise overdraft charges.

Lastly, we suggest further research of ‘free banking’ is required. Within future work improvements can be made with regards to the data used. Currently public availability of data on the costs of actual overdraft use the costs of additional charges levied within unauthorised overdrafts is limited and requires improvement. Lastly, data provision and access can be improved with regards to the diversity and value of services offered within current accounts. Such developments to data availability are critical in advancing the empirical assessment of this widely used and emotive area of retail banking provision.

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⁴ Full details of the Lending Code are available from the Lending Standards Board (www.lendingstandardsboard.org.uk/).

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Appendix: The parent firms supplying personal current accounts used in the study.

| | | | |
|-----------------------------|---------------------------------------|---|---------------------------------|
| Abbey National | Charterhouse Bank | Julian Hodge Bank | Santander |
| AIB | Chase | KBL | Schroder |
| Airdrie Savings Bank | Chelsea Building Society | Kleinwort Benson | State Bank of India |
| Alliance and Leicester | Citibank | Laiki Bank/Marfin Laiki Bank | Sun Life of Canada |
| American Express | Co-operative | Leeds and Holbeck Building Society | Tridos Bank |
| Arbuthnot Banking Group | Coventry Building Society | Leopold Joseph & Sons Ltd | TSB |
| Bank of China | Cumberland | Liverpool Victoria Friendly Society | Turkish Bank |
| Bank of Cyprus | Danske Bank | Lloyds | Weatherbys |
| Bank of Ireland | Dao Heng Bank | Manchester Building Society | Wesleyan Assurance Society |
| Bank of Scotland | Dresdner Benson | Metro Bank | Western Trust |
| Banque d'Escompte | Fleming Premier Banking | National Australia Bank | Whiteaway Laidlaw Bank |
| Barclays | Halifax | Nationwide Building Society | Woolwich |
| Bristol and West | HBOS | Natwest | Yorkshire Building Society |
| Britannia | HFC Finance (Household International) | Northern Rock | Zurich Financial Services Group |
| Butterfield Private bank | Hoare and Co | Norwich and Peterborough Building Society | |
| Caledonian Building Society | HSBC | Portman Building Society | |
| Cater Allen Private Bank | Investec bank | Royal Bank of Scotland | |