The Consumer Credit Act 1974 and the emergence of the APR as a consumer protection policy tool†

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The APR as a consumer protection policy tool: The Consumer Credit Act 1974

Abstract
The ‘Crowther Committee’, in their report of 1971, proposed a fundamental change in consumer credit regulation in the UK. Among many aspects, they campaigned for the calculation and publication of the true cost of lending, i.e. the annualized percentage rate (APR), of all consumer credit products. The APR was introduced to reduce information asymmetries, thus improving consumers’ rights and incentivizing competition among credit grantors. This report resulted in the enactment of the Consumer Credit Act 1974 (CCA74). This paper studies the effects of the CCA74 on the British economy, through the introduction of the APR. Moreover, it tests the presence of a structural break in the relationship between the price and volume of consumer credit. Furthermore, the paper analyses the effects of shocks to consumer credit on inflation and households’ savings. This article contributes to extending the data availability for consumer credit before 1975, and to debating the understanding of the role of consumer credit during a high-inflation period. There was evidence of a significant effect of the CCA74 on consumer credit, driven by the introduction of the APR. VAR models suggest that this law did not cause inflationary pressures, nor motivated households to dis-save, contrary to previous beliefs.
The passing of the Consumer Credit Act 1974 (CCA74) was a pivotal moment in British financial history. For the first time, the UK government formally acknowledged the complexities retail consumers face in credit markets and attempted to better understand how individuals absorb price signals in this market.

The enactment of the CCA74 had several policy objectives. Firstly, it finalized the process that began with the appointment of the Crowther Committee in 1968 and whose recommendations, when published in 1971, proposed the overhaul of existing and otherwise widely scattered regulation – some of it dating to usury laws decreed in the 1540s.¹ Secondly, the CCA74 introduced a requirement for the calculation and publication of the annualized percentage rate (APR). This sought to increase the transparency in retail credit transactions and enhance the availability of information for consumers to determine the true cost of lending. A third aim was to articulate legal rights for retail consumers and address the widely held perception that individual consumers were “inadequately protected” in retail credit markets.

The Committee of London Clearing Banks (CLCB) and the Finance Houses Association (FHA) acted as representatives of financial institutions working in retail credit markets. They were in favour of the Crowther committee’s report recommendations.² However, in resisting the introduction of the calculation and publication of the APR, the CLCB and FHA argued that the monetary value of weekly or monthly instalments was more important than the overall cost of the credit in determining purchasing decisions by individuals. The industry bodies also argued that the APR was a very complex concept

whose calculation was not straightforward, and that the information the APR could disclose was too sophisticated for the average British consumer, and that the cost of its calculation would pass onto the consumer. Moreover, the CLCB was particularly concerned with the effect of the new proposed legislation on the development of the credit card market and the overdrafts facility provided by the banks.

The proposed connected lending legislation, for example, could well inhibit the development of the credit card. Again, the arguments in favour of the quotation of a “true rate of interest” are theoretically strong. In practice, enforcement of this proposal on all forms of lending would have serious repercussions in many areas, not least that of the bank overdraft.

Research in this article documents how in spite of their reservations, financial institutions capitulated and collaborated with the government in the specification of the formulae for the calculation of the APR. Econometric results in this article suggest that when the APR was widely adopted there was a significant structural break in the relationship between prices and volumes of consumer credit. The results are robust for an array of different specifications of the model including filtered data and 2SLS estimations. This evidence supports the view that the introduction of the APR had an impact on the decision-making process of individual consumers.

This article builds a thorough historical narrative of the evolution of consumer credit, using as the starting point the publication of the ‘Crowther Report’ in March 1971.

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3 LMA, CLC/B/M32264/2. CLCB, ‘Comments upon the Department of Trade and Industry’s paper on “Computation and disclosure of the rate of charge for consumer credit transactions”’, Aug. 1972.
5 LMA, CLC/B/29/M32264/1. Letter from G. D. Burnett (General Manager National Westminster Bank Limited) to R. K. C. Giddings (Secretary CLCB), 23 June 1971.
Section I presents the evolution of consumer credit prior to the enactment of the CCA74. The following two sections describe the industrial organisation and legal framework of the British consumer credit markets in the late 1960s. Section IV presents a novel dataset of consumer credit in the UK before and after the passing of the CCA74. This section also implements an econometric strategy to test the validity of the narrative suggesting a structural break in the volumes of consumer lending following the introduction of the APR. Section V estimates VAR models and calculates impulse-response functions to test the response of inflation and households' savings from increases in the volume of consumer credit. The final section discusses the main results and proposes lines for future research.

I.

Deposit accepting retail financial institutions, commonly known as ‘banks’, for nearly as long as the poor, have always been part of western-style capitalism. As institutions, they tend to be an unquestioned presence in developed economies while most of their customers regard their activities as a mystery and yet they are taken for granted as part of everyday life.

In Britain, the activities of a “bank” were first typified in law with the passing of the Financial Services Act 2000. Yet, these institutions root to the payment clearing system that existed in London from the 1770s onwards. This evolved to a system where representatives of note-issuing banks met to exchange cheques, to transfer money between accounts at different institutions and settle net positions with payments from balances at the Bank of England. The system grew to a limited liability company known as the
Banker’s Clearing House Ltd. (established in 1864). The company was owned and controlled by a group of banks called the Committee of London Clearing Banks (CLCB), which offered current account facilities and money transmission services as their core business. Non-member banks wishing to compete with current account facilities could do so only by outsourcing to one of the ‘clearing banks’. By 1900, the ten clearing banks controlled 46 per cent of all deposits in sterling by residents in England and Wales and by 1921, five of these banks held 97 per cent of all deposits. British monetary authorities consented to this high degree of concentration, amenable to ‘gentlemen’s agreements’, because they considered that it offered greater flexibility than regulation would for controlling the money supply and inflation.

A market for consumer credit developed alongside banks. Parliament first regulated credit provision in England as early as 1545, establishing a maximum of 10 per cent for interest payments by individuals and thus liberating commerce from the “shackles” of the Catholic Church’s usury laws. Overall, however, consumer credit remained largely unregulated until 1900 when the Moneylenders Act required those supplying individual credit to register with a magistrate. The same Act also granted the judiciary power to dissolve unfair agreements. A revision to this law enacted in 1927 increased the costs of registration and introduced a nominal annual interest rate ceiling of 48 per cent that, inadvertently incentivized the growth of hire-purchase.

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6 Notable participants in the organizational ecology of British depository financial institutions included the Post Office Bank, trustee savings banks and building societies.
7 Gelpi and Julien-Labruyère, ‘History of consumer credit’, pp. 29-41.
8 O’Connell, ‘Credit and community’, pp. 131-147. Hire-purchase was largely unregulated in England until the passing of the Hire Purchase Act 1938 and its significant revision enacted in 1954, see Thornely and Zeigel ‘Hire-purchase reformed’.
By the late 1960s and in the context of postwar affluence, organizations supplying the retail consumer credit market in the UK could be divided into two large and distinct organizational groups. The first group included the main suppliers of consumer credit, namely clearing banks and finance houses. Clearing banks offered personal overdrafts, personal loans, and credit cards. Finance houses were the main providers of hire purchase and credit sale agreements, largely (but not limited to) facilitating advances for motor vehicle purchases. They were excluded from accepting retail deposits while funding their operations through the money market. By the 1960s some of them had partnered with large retailers to finance the acquisition of white goods, furniture, TVs and other home appliances (at the same time, some retailers had entered the consumer credit market by supplying instalment credit directly to their customers). At the time, finance houses were actively looking to diversify into the provision of personal loans and revolving credit.

A second organizational group encompassed institutions that provided short- and long-term consumer lending. Financing short-term transactions included check traders (also known as Scotch drapers, tallymen, and credit drapers), credit card issuers, mail order houses, pawnbrokers, moneylenders, and mutual aid societies. Check traders appeared at the end of the 19th century as doorstep sellers of clothing and drapery who collected repayment through weekly instalments. Pawnbrokers and moneylenders represented an insignificant source of consumer credit in postwar Britain while mutual aid societies encompassed different forms of association (such as credit unions) where middle- and

10 Bowden and Offer, ‘Household appliances’.
11 Other actors giving consumer credit were the National Giro, some small loan societies and other small lenders.
working-class individuals pooled resources to extend low-cost credit to their peers.

II.

Before the passing of the Consumer Credit Act 1974 (CCA74), the growth of the consumer credit market in postwar Britain was evident while there were confusion and overlap on how transactions in this market were typified.\textsuperscript{12} For instance, the extension of funds and the deferment of payments for the purchases of consumer goods were considered two different and distinct transactions. Of greater concern was that the regulation of consumer credit spread throughout a large body of law and diverse collection of rules of jurisprudence.\textsuperscript{13} The Department of Trade and Industry then set up an enquiry committee in September 1968 under the direction of former ‘The Economist’ editor, Sir Geoffrey Crowther (1907-72), Baron Crowther of Headingley, with a view to improving the regulatory framework of consumer credit while increasing protection of borrowers.

It is worth noting that long-term consumer credit was excluded from the remit of the enquiry and therefore is not analysed within this paper. Long-term lending chiefly involved mortgages for house purchase or the repair and improvement of personal dwellings through building societies, local authorities, insurance companies and a host of brokers and dealers that engaged with individual customers on behalf of these organisations.\textsuperscript{14}

\textsuperscript{12} Hansard (Lords), CCCXXXII, 28 June 1972, cols. 928-77.
\textsuperscript{14} For a comprehensive review of the development of the building societies in the UK see Samy, ‘Building society promise’. To understand the structural transformation of these institutions during the 1970s and 1980s see Boléat ‘Building society industry’; and how they entered the British bank markets see Bátiz-Lazo ‘Strategic alliances’. 
Sir Royston Myles Goode, who was also a member of the Crowther Committee on Consumer Credit, argued that the Crowther Committee identified three fundamental issues regarding the regulation of consumer credit.  

First, the regulation of transactions according to form instead of function. The latter, the report suggested, would enable separating sale credit (deferment of payments) from loan credit (extension of funds). The second issue was the failure to distinguish between consumer and commercial transactions and, the third one was the absence of any rational policy in relation to the role and liability of third parties in a consumer credit transaction. This recommendation suggested that, although protection of borrowers was typified in English law, borrower protection was not de facto enforced because its application relied on a host of technicalities that, in turn, and with no apparent reason, most cases often failed to meet.

The Crowther report identified a degree of consumer inertia in buying habits (with a strong preference for financing alternatives with which they were most familiar) and that consumers would seldom shop around for better offers. All this, increasing the cost of purchases. The report also recorded there was a social stigma in the use of consumer credit. However, this seemed to be significantly less to that observed during in the interwar period, when ‘like contraception or venereal disease, it became an area where secrecy, born of social stigma, bred ignorance, thus limiting consumers’ ability to make informed choices’.

Following the publication of the ‘Crowther Report’ in March 1971, a debate was initiated in June 1972 at the House of Lords by Norah Mary Phillips, Baroness Phillips. In

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16 Crowther report (P.P 1971, I), p. 120.
her initial statement, she argued that:

Under the present law a finance company has no obligation to show in its advertising or in any other way the cost of the service that is being operated. It is difficult for the ordinary man or woman to find out or understand for what he or she is paying when buying goods on deferred terms. The finance houses, including the banks, do not make it any easier to compare the true cost of borrowing.\(^{18}\)

Even though it took 30 months for the ‘Crowther Report’ to be turned into a Bill, in March 1973, the Department of Trade and Industry passed a ‘Voluntary Code’ instructing credit intermediaries to calculate and publish the ‘true cost of lending’, expressed as an annualized percentage rate (APR)\(^{19}\), among other changes toward the improvement of consumer rights. Later on, in September 1973, the government published a ‘White Paper’ that followed the recommendations of the ‘Crowther Committee’ to replace scattered regulation on consumer credit with two pieces of legislation: one dealing with security in lending and the other on consumer credit.\(^{20}\)

The introduction of a requirement for the calculation and dissemination of the true cost of credit then became one of the main elements of the CCA74. As mentioned above, in their representations to the government through the CLCB and FHA, financial institutions were concerned that individual consumers would not understand the concept of the true cost of credit as represented by the annualized percentage rate (APR). They also argued that the calculation was complex and not straightforward. Instead, they argued, households' concern was the amount and frequency of instalments. It is also worth noting

\(^{18}\) Hansard (Lords), CCCXXXII, 28 June 1972, col 931.
that the CLCB disagreed with the inclusion of overdrafts as a form of consumer credit and actively but unsuccessfully lobbied to keep them outside the proposed new legislation.

Mr S. Wild (Chairman – National Westminster) said that ‘the White Paper did little to allay the fears of the banks that the provisions of the proposed Consumer Credit Bill could bring about the demise of the overdraft system in its present form which had been recognised by customers over very many years as the most flexible and suitable form of lending available to them’.  

A general election took place between the introduction of the Consumer Credit Bill in the House of Commons by the Conservative government in November 1973 and its passing under a Labour government on July 1974. The fact that the Bill passed swiftly through both houses of Parliament suggested a consensus on the need to reform the legal framework around the consumer credit market. Moreover, when enacted this new regulatory framework covered most of the consumer credit products that were available to the British public at that time.

In what follows, we argue that it was the innovation of requiring the calculation and dissemination of the true cost of credit through the APR, the element within in the CCA74 that would significantly change the relation between prices and outstanding volumes of consumer credit. A stated objective for the introduction of a standardized measurement of the cost of credit was to reduce information asymmetries, enhance competition in the consumer credit market and, a result, reduce the price of consumer credit so that its demand could grow. Indeed, implicit in Crowther's report there is an argument in favour of

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22 ‘Speed-up of credit Bill by Parliamentary Staff’ in Daily Telegraph, 18 June 1974.
reducing information asymmetries in the availability and cost of different types of consumer credit products. Since the volumes of consumer credit were expected to increase, the report suggested that children (through schools) and adults should receive financial education to prevent households from undue financial stress.

Although the direct effects of greater consumer credit on the economy are unclear, there are some channels through which consumer credit might have real, long-term impact. For instance, consumer credit may affect national income by increasing the productivity of the industries that make use of it through the supply of capital, and by facilitating exchange. Nonetheless, these effects are uncertain and indefinite. Savings margins might be reduced by higher demand for consumer credit because part of households' savings can be allocated to liquidating the debt.25

The report disregarded the possibility that an increase of consumer credit would add to inflationary pressures. This was of particular interest, since the Bank of England was quite concerned with the positions of the German and French currencies and their impact on the Sterling, possibly generating a substantial deficit in the UK balance of payments. As a result, these inflationary pressures were dealt with, via the imposition of credit restrictions, especially on lending for consumption purposes.26 Nonetheless, the ‘Crowther Report’ considered that a standardized measure of the cost of credit plus sufficient financial education would deliver better-informed households and this had the potential to increase access to goods and services, through the inter-temporal reallocation of income.

26 LMA. CLC/B/M32259/6. ‘Credit Restriction’. Informal note of discussion at the Meeting of Chief Executive Officers (CLCB) held at the Bank of England, 21 Nov. 1968.
The main sources consulted to build the dataset used in the econometric strategy were the historical archives of the Bank of England (BoE), the Finance & Leasing Association (previously known as the Finance Houses Association), the United Kingdom Quarterly Economic Accounts (UKEA), the Office for National Statistics (ONS), Nationwide Building Society, and Thomson Reuters. The sample period spanned from the first quarter of 1967, which is the earliest date when the BoE reported lending for consumption purposes separately from lending for house purchase, until the third quarter of 1986, which coincided with another period of regulatory change as marked by the passing of the Building Societies Act 1986 and the Financial Services Act 1986.

Prior to the CCA74 no aggregate data or reliable series of consumer credit was systematically collected in the UK. As a result, we built a data series for the outstanding volumes of consumer credit while trying to avoid inconsistencies and measurement errors. The pre-1975 consumer credit data was thus calculated by adding three series; namely advances by British banks to hire-purchase finance houses, retail distribution, and loans to persons (excluding house purchase). The series was then spliced with ‘consumer credit lending (excluding securitizations) to individuals’ (that is, the post-1975 series of consumer credit readily available from the Bank of England's electronic database). A similar process was carried out with the Finance House Base Rate (FBHR) and the Bank of England’s official rate. The FHA started publishing the FHBR in January 1970, when

\[ \text{(Footnote: Hill and Fox, ‘Splicing index numbers’; de la Fuente Moreno, ‘Mixed splicing procedure’; Prados de la Escosura, ‘Mismeasuring long-run growth’.)} \]
they argued that the movements in the Bank Rate were not any more representative of the movements of the price of consumer credit.  

The dataset (table 1) contained 79 observations ranging from 1967q1-1986q3 with information on the outstanding volumes of consumer credit as percentage of households’ disposable income and as percentage of GDP, the nominal (Bank of England’s Base Rate spliced with FHBR) and real (accounting for inflation) interest rates, households' disposable income as percentage of GDP, households and non-profit institutions serving households’ savings ratio, employment, Nationwide's UK house price index (change quarter-on-quarter), M4, inflation (RPI), and households' consumption as percentage of GDP.

[Insert table 1 here]

Consumer credit was on average 19.08 per cent of households’ disposable income, ranging from 9.56 to 31.39 per cent, during the entire period of analysis. When calculated as the percentage of GDP, this value goes from a minimum of 5.16 to a maximum of 18.34 per cent, with a mean of 10.96 per cent of GDP. The big variation of the percentage of consumer credit across the sample, more than a threefold increase, suggested that this period witnessed a transformation of the demand and usage of consumer credit, as supported in the literature.

The spliced nominal interest rate, used as a proxy for the price of consumer credit, observed values between 5 and 18 per cent, with a mean of 10.68 per cent. Since inflation, as measured by the retail price index (RPI), reached its historical high of 26.6 per cent

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29 Where applicable, series were standardized to constant prices of 2011 using the GDP deflator and seasonally adjusted.
during the third quarter of 1975, the spliced real interest rate observed negative values during some periods (1971q1-1972q2, 1974q2-1976q3, 1977q1-1978q1, 1979q3-1980q2) and a mean close to zero (0.90).

Households’ disposable income as percentage of GDP was on average 57.04 per cent with a minimum of 53.46 and a maximum of 61.12 per cent. Households’ consumption, measured as the percentage of GDP ranged from 49.12 to 54.34 per cent, with a mean of 51.26 per cent. Consumer credit, households’ disposable income, and households’ consumption showed an abrupt decay between the end of 1974 and the beginning of 1975, with the trough occurring during the first semester of 1977. The savings ratio was on average 10.51 per cent of disposable income, ranging from 5 to 16.3 per cent across the sample period.

The series of employment was used in our analysis to capture significant movements in the income of British households. This series had an average of around 24 million people employed across the entire period, with a maximum of 25 million at the end of 1979 and a minimum of 22.7 million people two years after, at the beginning of 1983. House prices index was the variable used to measure household wealth in the UK. We took the index in constant prices of 2011 and then calculated the quarter-on-quarter change. The average house price change in our sample was 0.61, going from -5.66 (decrease in house price index) to 9.96, with this peak occurring at the end of 1974. The evolution of this index showed significant movements in the value of real estate in the UK.

For our econometric strategy in section IV, we used as instruments to account for the presence of endogeneity, the money supply M4 and the inflation rate (RPI). M4 had a clear positive trend and was always growing throughout the period from 19 to 250 billion
pounds sterling, with an average of 88.3 billion. Inflation, as mentioned before, peaked at 26.6 per cent during the third quarter of 1975, but additionally had another (local) maximum of around 20 per cent at the beginning of 1980. The overall minimum of this series was 1.7 per cent in 1967q3, but there was another (local) minimum at the end of the period of analysis of 2.6 per cent.

Visual inspection of performance suggested higher average values for all variables during the post-1974 period, except for the spliced real interest rate and employment. Particularly interesting was that price of consumer credit seemed to be increasing at the same time that the outstanding volume of consumer credit was increasing. This was interesting because if consumer credit is assumed to behave like a normal good, then there should have been a negative correlation between the price of the good and its demand.

[Insert figure 1 here]

Figure 1 presents the evolution of consumer credit as the percentage of GDP, the spliced nominal interest rate, and the spliced real interest rate. According to this figure, there seems to be a positive correlation between the price of consumer credit, both the nominal and the real series, and the outstanding volumes of consumer credit, from the early 1970s until after the enactment of the CCA74. This relationship seemed to change after the second half of the 1970s. This is precisely the main channel that this article explores. The publication of the APR would in principle contain all the relevant information regarding the true cost of lending. Assuming that consumers were able to shop around for better offers, they would have also understood better the real cost of different consumer credit products, and the law of demand should hold again.

To test the significance of the difference of the means we calculated the t-test for
the mean difference of all the variables (final column of table 1). As we already mentioned, the mean value for all the variables, except the spliced real interest rate and employment, was higher in the post CCA74 period. According to the table, consumer credit volumes were higher after the enactment of the CCA74. Also, there was a significant increase in both inflation and households’ savings. To explore the effects of the CCA74 on the outstanding volumes of consumer credit, through the calculation and publication of the APR, the next section presents the econometric strategy. Moreover, in order to analyse the relationship between consumer credit, and inflation and households' savings, we estimated two VAR models with their correspondent impulse-response functions.

Additionally, we ran Augmented Dickey Fuller, Phillips-Perron, and Dickey Fuller GLS unit-root tests of non-stationarity and the KPSS test of stationarity for all series.\(^3^0\) We did this exercise, when possible, for the series in levels, the first difference of the series in levels, the series in logarithms, the first difference of the logarithm of the series, and to the filtered series. The conclusion of this exercise was that the best way to get rid of the unit roots in all the series, while preserving their interpretation as simple and straight forward as possible, was to filter the data. Therefore, we applied the HP filter to all series, and that is the specification we use in the next section.\(^3^1\) We tested again for the presence of unit roots, and for those series who showed some evidence of non-stationarity (filtered employment and M4), we calculated the first difference of the filtered series, and we used that specification instead.

\(^3^0\) The results of this exercise are available upon request.

\(^3^1\) Hodrick and Prescott, ‘Postwar US business cycles’. We also ran robustness checks for all the exercises in our econometric strategy, by using the Butterworth rational square-wave filter, in Pollock, ‘Trend estimation and de-trending’.
IV.

Following economic theories of consumption-smoothing over the life-cycle, the permanent income theory, and theories of how households use credit to smooth their consumption over their life-cycle, and particularly for the UK, the following reduced form equation was estimated:

\[ V_t = \alpha + \delta CCA74_t + \gamma_t P_{i,t} + \eta_t \text{Interaction}_{i,t} + \beta_j X_{j,t} + \epsilon_t \quad (1), \]

where \( V \) is the outstanding volume of consumer credit at time \( t \), CCA74 is a dummy that takes the value of one for periods equal or greater than the third quarter of 1974, when the CCA74 was enacted, and zero before that, \( P \) are the \( i \) measures for the price of consumer credit in each period (i.e. the nominal and real spliced interest rates) at time \( t \), Interaction are the interaction terms between the CCA74 dummy and the two measures of the price of consumer credit, \( X \) is a vector of \( j \) control variables at time \( t \), and \( \epsilon_t \) is the error term.

We estimated equation (1) using an OLS regression with heteroskedasticity-robust standard errors, of the effects of the CCA74 on the outstanding volumes of consumer credit, measured as the percentage of households’ disposable income, and in particular, through the interaction of this dummy variable with the spliced nominal and real interest rates (table 2, col. 1). We argue that the introduction of the calculation and publication of the APR affected the relationship between price and volumes of consumer credit, as a result of the reduction in the information asymmetries found in this market before the CCA74.

\[ ^{33} \text{Friedman, ‘Consumption function’.} \]
\[ ^{34} \text{Browning and Lusardi, ‘Household saving’.} \]
\[ ^{35} \text{Hartropp, ‘Consumer borrowing’; del Río and Young, ‘Determinants of unsecured borrowing’.} \]
Since during this period, consumer credit in the UK was arguably driven by the demand side,\textsuperscript{36} we also included in the model demand-side control variables such as households' disposable income (and its first four lags), households' savings ratio (and its first four lags), the first difference (change quarter on quarter) of the employment levels, and the house price index quarter-on-quarter change (and its first four lags). Additionally, this specification also controlled for the period from the publication of the ‘Crowther Report’ in March 1971, when the proposal of requiring the calculation and publication of the APR was introduced, to the enactment of the CCA74; the period of the “Corset” restrictions;\textsuperscript{37} and the Thatcher government period.

We found evidence of significant effects of the CCA74 on the outstanding volumes of consumer credit, through the interaction term of the CCA74 dummy variable with the spliced nominal interest rate. Moreover, the magnitude of the coefficient of said interaction (-1.5), is higher than the coefficient of the spliced nominal interest rate (1.2), both being significant at the one per cent level of significance. This result suggests that after the passing of the CCA74, an increase of 100 basis points in the cost of consumer credit on average, decreased the volumes of consumer credit by around 30 basis points, having this correlation had been positive previous to the enactment of this law.

[Insert table 2 here]

The fact that the spliced nominal rate had a positive and significant coefficient, under the assumption that consumer credit is a normal good for British households, would show evidence of inefficiencies in the consumer credit market. Nonetheless, the fact that the nominal interaction had a negative sign is evidence that the relationship between

\textsuperscript{36} Hartropp, ‘Consumer borrowing’, pp. 11-12.
\textsuperscript{37} Goodhart, ‘Competition and credit control’.
consumer credit prices and the outstanding volumes of consumer changed significantly after the enactment of the CCA74. This is one of the main contributions of this article. The introduction of the calculation and publication of the APR reduced information asymmetries in the consumer credit markets by making more transparent the prices and therefore the information signalling from issuers to borrowers.

Turning to the control variables used in this specification, we found the expected signs and significance levels for most of the covariates. From the dummy variables defining different periods (Crowther, Corset restrictions, and Thatcher), the only period for which the levels of consumer credit were significantly higher than the base period, after controlling for all other variables, was the period between the publication of the ‘Crowther Report’ and the enactment of the CCA74 (2.86 percentage points, at the one per cent level of significance).

Moreover, we found that the contemporary households’ disposable income (at the five per cent level of significance) and its fourth lag (at the one per cent level of significance) had positive and significant effects on the levels of consumer credit. Opposite to this, we found that the savings ratio, in accordance with the literature that argues that there is a trade-off between savings and debt, had a negative effect, significant at the five per cent level for the contemporary value and at the one per cent level for the value six months before, on the level of indebtedness.

In line with income, we found that an increase of one million employed people would generate an increase of 7.64 percentage points in the volumes of consumer credit as the percentage of households’ disposable income. The only variable for which the significance levels were less than expected (10 per cent level of significance) was the
change in the house price index. Furthermore, these coefficients had different signs for the contemporary value, being negative, and for the third lag, being positive. This showed evidence that changes in wealth had positive effects on consumer credit in the long run, but negative effects on the short run.

Since what we are arguing is that there was a structural break in the third quarter of 1974, we ran a Chow test to provide further evidence that this was the case. To do so, we estimated the following regression:

\[ V_t = \alpha + \partial CCA74_t + \beta_i X_{i,t} + \gamma_i CCA74_t \times X_{i,t} + \epsilon_t \quad (2), \]

where \( V \) is the outstanding volume of consumer credit at time \( t \), \( CCA74 \) is the dummy that determines the date of the potential structural break, and \( X \) is the set of \( i \) continuous independent variables used in the previous regression (i.e. the prices and demand-side variables with their respective lags). For this test, we used the HP-filtered variables as before. Then, we ran an F-test on \( \partial \) and \( \gamma_i \) to see if there was a structural break at this moment in time. The F-statistic (19,36) is equal to 14.67 with a p-value equal to 0.000. Therefore, we rejected the null hypothesis that the coefficients are constant before and after the third quarter of 1974, thus providing evidence of a structural break in the series.

Another potential source of endogeneity in the estimation of the previous reduced form equation is the fact that there could have been a simultaneous causality generated from the volumes of consumer credit to the prices (spliced nominal and real interest rates). To tackle this issue, we implemented a two-stage least squares (2SLS) regression, using as instruments supply-side variables. The instrumental variables used in the 2SLS regressions

\[ \text{38 Results from this regression are not reported here but are available upon request.} \]
were the HP-filtered inflation rate and first difference of M4 (table 2, cols. 2-4). The main conclusion from this exercise is that the principal results still held. There was evidence of a significant effect of the CCA74 on the outstanding volumes of consumer credit through the implementation of the calculation and publication of the APR, and there was a structural break in the relationship between volumes and prices after the enactment of this law. Furthermore, the results are at least similar or even more significant than those from the estimation of the OLS model.

From the first-stage regressions (table 2, cols. 3 and 4) we concluded that all the variables, particularly the instruments, had the expected signs and significance levels. The Angrist-Pishcke multivariate F-test of excluded instruments for the first-stage regressions, rejected the null hypothesis that the instruments were not bringing any useful information to explain the variation of the endogenous variables, therefore the relevance condition for robust instruments held for the two first-stage regressions. Moreover, the Hansen J-statistic for the overidentification test of all instruments could not reject the null hypothesis that the instruments were exogenous at any relevant level of statistical significance. Therefore, the instruments had the two desired properties of relevance and exogeneity for strong instruments.

Since the previous results seemed to be very robust across different specifications, we can conclude that there is strong evidence that the CCA74 had significant and positive effects on the outstanding volumes of consumer credit. Moreover, the channel through which this phenomenon occurred was the introduction of the calculation and the publication of the APR. This channel caused a structural break in the relationship between the outstanding volumes and prices of consumer credit. Bearing this in mind, it is worth
now turning to the analysis of the effects of the increase in the volumes of consumer credit on the economy. Namely, the article investigates in the next section if the increase in the volumes of consumer credit generated any inflationary pressures and/or if this increase could have motivated households to dis-save.

V.

Now that we have provided solid evidence that there was a significant effect of the enactment of the CCA74 on consumer credit, through the APR channel and how it changed the relationship between the price and volume of consumer credit in the UK, it is worth testing two of the main hypotheses that the ‘Crowther Committee’ formulated in their report. First of all, they argued that the increase in the volumes of consumer credit should not generate any inflationary pressures.\(^{39}\) Nonetheless, there was a strong increase in inflation just a couple of quarters after the enactment of the CCA74. Moreover, as discussed previously, even before the enactment of the CCA74, there was already an important worry about inflationary pressures and the government was actively working to avoid any significant increases in inflation. Despite all these efforts, the highest recorded inflation rate in the history of the UK occurred precisely during this period.

Second, the ‘Crowther Committee’ also argued that British households would not be incentivized to dis-save as a result of the cheaper access to consumer credit.\(^{40}\) On the one hand, the publication of the APR would motivate competition among credit suppliers, thus decreasing the overall price of consumer credit. Given this, and according to the law of demand for normal goods, there should be an increase in the demand for consumer

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\(^{39}\) Crowther report (P.P 1971, I), pp. 120-8.

\(^{40}\) Ibid, pp. 128-131.
credit. On the other hand, even though these products could in principle substitute savings to finance consumption in the short run, households would still have to increase their savings in the future to repay these obligations. Therefore, in the long run, the savings ratio should not be affected, but households would still be able to optimize their inter-temporal consumption path through access to cheaper indebtedness.

In order to test the effects of an increase in the outstanding volumes of consumer credit on inflation and household savings, we sought first for evidence of a cointegrating relationship in two different settings using the Johansen VAR/VECM-based procedure. The first one, for inflation, was based on an extended Phillips-curve type setting where we include the volumes of consumer credit. The specification for the effects on households' savings is based on the economic theories of consumption smoothing over the life-cycle, and the permanent income theory, again including the volumes of consumer credit. Nonetheless, we do not assume any parametric setting since vector auto-regression models (VAR) and vector error-correction models (VECM) do not assume any causal relationship between the variables. For these tests, we used the data in levels as there was strong evidence that all of these series were I(1) according to the unit-root tests we ran.

For the inflation specification, the optimal lag-length was two lags according to different criteria. For the households' savings specification, the optimal lag-length was one lag, according to the same criteria. After running all tests, we found no evidence of the presence of cointegrating vectors for any of the specifications. Therefore, we turned to the

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42 Friedman, ‘Consumption function’.
44 Final prediction error (FPE), the multivariate Akaike’s information criterion (AIC), the Schwarz's Bayesian information criterion (SBIC), and the Hannan and Quinn information criterion (HQIC).
estimation of VAR models for the two systems of equations, using the stationary HP-filtered data. Again, we used the same criteria to decide the optimal lag-length, resulting in the same lags as before. The first VAR model we estimated was the following (table 3, col. 1):

\[ Y_t = B_0 + B_1 Y_{t-1} + B_2 Y_{t-2} + U_t \] (3),

where \( Y \) is a matrix containing the HP-filtered values of inflation, the first difference of employment, and consumer credit as the percentage of GDP, and \( U \) is a vector containing the error term of each one of the equations. Additionally, we ran Granger-causality Wald tests to analyse if past values of any of the variables or all of the independent variables together Granger-caused the dependent variable (table 3, col. 2).

[Insert table 3 here]

The main conclusion was that consumer credit did not result significant in any of the equations, except in its own equation. Moreover, consumer credit did not Granger-cause any of the variables in the VAR, particularly inflation. The \( \chi^2 \)-tests for each one of the equations stated that the VAR was well specified and overall, all lagged-values of the variables were relevant to explain the contemporary variation of the dependent variables in each of the equations. Looking at the Granger-causality results, we concluded that the only variable that Granger-caused another variable during this period, was the inflation rate. The drastic change in the price level seemed to have significantly affected the change in employment, but not the other way around. This suggests that the increase in inflation was caused mainly by external factors instead of internal problems.\(^{45}\)

\(^{45}\) In a previous version of this paper we considered for all exercises, the secondary banking crisis of 1973-5, and the oil price crisis of 1973. We found that the latter had significant effects on inflation during this period. For an analysis of the secondary banking crisis, see Scott ‘The new alchemy’. For a deeper insight into
To extend even further the analysis of the effects of the increase in the volumes of consumer credit on inflation, we estimated impulse-response functions using the results from the previous VAR (figure 2). After inducing a temporary shock to the levels of consumer credit, we calculated the effect on the evolution of the inflation rate for the next 20 periods, or five years. As seen in the figure, the 95 per cent confidence interval contained zero along the entire response period, thus affirming that the effect of a temporary increase in consumer credit on the inflation rate, was negligible (not statistically different from zero).

[Insert figure 2 here]

The second VAR we estimated, in this case, to analyse the effects of the increase of consumer credit on households' savings was the following (table 3, col. 3):

\[ Y_t = B_0 + B_1 Y_{t-1} + U_t \quad (4), \]

where \( Y \) is a matrix containing the HP-filtered values of households' savings ratio, consumer credit as the percentage of GDP, households' disposable income as the percentage of GDP, and households' consumption as the percentage of GDP, and \( U \) is a vector containing the error term of each one of the equations. As before, we ran Granger-causality Wald tests to analyse if past values of any of the variables or all of the independent variables together Granger-caused the dependent variable (table 3, col. 4).

As with the previous VAR, the main conclusion still held. Except in the equation of consumer credit, the lagged values of consumer credit were not significant in any of the equations of the VAR. Additionally, consumer credit did not Granger-cause individually any of the other variables. Once again, the \( \chi^2 \) tests for each one of the equations showed

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that the VAR was well specified, and that lagged values of all the variables helped to explain the variation of the dependent variables in each one of the four equations. In the households' savings equation, none of the lags of the other variables were significant, nor they Granger-caused households' savings individually, although these variables were jointly significant in the equation and altogether there was evidence that they Granger-caused the savings' ratio.

As before, we extended the analysis of the effects of the increase in the volumes of consumer credit, but this time on the households' savings ratio. To do so, we calculated impulse-response functions, where we first induced a shock to the volumes of consumer credit and then analysed its effect on the savings ratio (figure 2). The effect of a shock in consumer credit on the households’ savings ratio was negligible. Particularly, in this case, the 95 per cent confidence interval was bigger than before, and it also included zero for the 20 steps, or five years, of analysis of the response.

In this section we have provided evidence that in line with the hypotheses formulated by the ‘Crowther Committee’ in 1971, the increase in the volumes of consumer credit did not contribute to generating any inflationary pressures, nor did it incentivize households to reduce their savings. The main channel through which the CCA74 had a significant effect on the economy was the calculation and further publication of the APR.

VI

In this paper, we argued that the introduction of the calculation and publication of the APR for consumer credit, improved consumers' understanding of the true cost of credit and allowed them to shop around for better offers. There was evidence that the introduction
of the calculation and publication of the true cost of lending did reduce information asymmetries in the consumer credit market in the UK, which is important given their relevance in this market. Additionally, we have provided evidence of the existence of a structural break in the relationship between the volume and the price of consumer credit after the enactment of the CCA74, which suggested that households were more capable of making rational decisions about their demand for consumer credit, based on the information signalled by more transparent prices.

Specifically, this article answered the question “what were the economic effects of the Consumer Credit Act 1974 on the British economy?” in two steps. First, we analysed if there was a significant effect of the enactment of the CCA74 on the outstanding volumes of consumer credit, after the introduction of the calculation and publication of the APR. Second, we tested the hypotheses that the ‘Crowther Report’ enunciated with regards to the macroeconomic effects of the act. Namely, that there were not going to be any inflationary pressures due to the increase of the demand of consumer credit, and that this new regulatory setting would not incentice households to dis-save.

We answered this question by looking at different primary and secondary sources from the British Bankers Association's historical archives, the Quarterly Bulletin of the Bank of England, and articles from different newspapers and magazines of the time. We also implemented an econometric strategy to assess the statistical significance of the enactment of the CCA74 on the outstanding volumes of consumer credit, using new series built on the information from the primary and secondary sources. Furthermore, we tested for the presence of cointegration between consumer credit, and inflation and households'

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46 Karlan and Zinman, ‘Observing unobservables’.
savings, and estimated a series of VAR models to test the effects of shocks to consumer credit on the British economy.

We found significant effects of the enactment of the CCA74 on the outstanding volumes of consumer credit, through the introduction of the calculation and publication of the APR. Moreover, we uncovered a structural break in the relationship between prices and the outstanding volumes of consumer credit, as a consequence of this policy. Finally, we provided evidence to argue that the increase in consumer credit did not generate any inflationary pressures, contrary to what was expected by the Government. Likewise, households did not show evidence of substituting the use of consumer credit for savings and in that sense were not motivated to dis-save. These results contribute to improve our knowledge and understanding of some of the most volatile decades of British history, when inflation in the UK reached its historical peak. Although inflation was rising during this period, at the same time that unemployment and economic stagnation were some of the main worries for the country, consumer credit was not one of the catalysts or factors that worsened the political and socioeconomic environment.

This article contributes to the literature by providing new series of consumer credit before 1975 and implementing them to improve our understanding of the role of consumer credit during one of the most volatile decades of the history of the UK. Additionally, this paper improves the current understanding of the effects of information asymmetries in consumer credit markets' efficiency.

Future lines of research should focus on the analysis of how households have used the APR to optimize their demand for consumer credit in recent decades, when the vast increase in products availability has made once again more difficult to compare among
different options. Additionally, it is important to analyse the different uses of consumer credit along the income distribution, as wealthier households are likely to make use of consumer credit for different purposes than poorer households. Because of this, consumer credit could behave as a normal good for some households, but as an inferior good for some others. Due to the aggregation of our data set we were not able to disentangle these differences across households. Moreover, if households are using consumer credit for purposes other than the optimization of their inter-temporal consumption path, then theories of consumption smoothing over the life cycle and the permanent income theory should be challenged and complemented.
Footnote references


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Finlay, S., Consumer credit fundamentals (2nd edn. 2009).

Friedman, M., A theory of the consumption function (Princeton. 1957).


Karlan, D., and Zinman, J., ‘Observing unobservables: identifying information


**Official publications**

*Consumer credit: report of the committee on consumer credit* (P.P. 1971, I).


Appendices

Figures

Figure 1. Volume and price of consumer credit across enactment of CCA74

Figure 2. IRFs of a shock to consumer credit on inflation and savings ratio

Source: Authors' calculations from VAR models
Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Full sample (n=79)</th>
<th>Pre CCA74 (n=30)</th>
<th>Post CCA74 (n=49)</th>
<th>T-test</th>
<th>Mean dif.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CC % income</strong></td>
<td>19.08</td>
<td>14.37</td>
<td>21.97</td>
<td>-7.60</td>
<td>***</td>
</tr>
<tr>
<td><strong>CC % GDP</strong></td>
<td>10.96</td>
<td>8.00</td>
<td>12.78</td>
<td>-4.78</td>
<td>***</td>
</tr>
<tr>
<td><strong>Nominal interest rate</strong></td>
<td>10.68</td>
<td>8.61</td>
<td>11.95</td>
<td>-3.34</td>
<td>***</td>
</tr>
<tr>
<td><strong>Real interest rate</strong></td>
<td>0.90</td>
<td>1.64</td>
<td>0.45</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td><strong>HH income</strong></td>
<td>57.04</td>
<td>55.47</td>
<td>57.99</td>
<td>-2.52</td>
<td>***</td>
</tr>
<tr>
<td><strong>Savings ratio</strong></td>
<td>10.51</td>
<td>7.22</td>
<td>12.53</td>
<td>-5.31</td>
<td>***</td>
</tr>
<tr>
<td><strong>Employment 000's</strong></td>
<td>23,996</td>
<td>24,212</td>
<td>23,863</td>
<td>349.52</td>
<td>**</td>
</tr>
<tr>
<td><strong>House price change</strong></td>
<td>0.61</td>
<td>1.61</td>
<td>0.02</td>
<td>1.59</td>
<td>**</td>
</tr>
<tr>
<td><strong>M4</strong></td>
<td>88,336</td>
<td>29,732</td>
<td>124,216</td>
<td>-94.484</td>
<td>***</td>
</tr>
<tr>
<td><strong>Inflation (RPI)</strong></td>
<td>9.92</td>
<td>6.92</td>
<td>11.76</td>
<td>-4.85</td>
<td>***</td>
</tr>
<tr>
<td><strong>HH consumption</strong></td>
<td>51.26</td>
<td>50.68</td>
<td>51.62</td>
<td>-0.94</td>
<td>***</td>
</tr>
</tbody>
</table>

*Note: * p<0.10, ** p<0.05, *** p<0.01

*a n=78 for full sample and n=29 for Pre CCA74

Source: Authors’ calculations.
Table 2. Effect of the Consumer Credit Act 1974 (APR) on consumer credit

<table>
<thead>
<tr>
<th></th>
<th>(1) CC % income OLS</th>
<th>(2) CC % income IV</th>
<th>(3) Spliced FHBR</th>
<th>(4) Nominal interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCA74</td>
<td>0.772 (1.290)</td>
<td>0.764 (1.052)</td>
<td>-0.250** (0.120)</td>
<td>-0.200 (0.123)</td>
</tr>
<tr>
<td>Spliced nominal rate</td>
<td>1.222*** (0.421)</td>
<td>1.196*** (0.342)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spliced real rate</td>
<td>-0.125 (0.331)</td>
<td>-0.0919 (0.273)</td>
<td>0.999*** (0.028)</td>
<td>-0.116*** (0.028)</td>
</tr>
<tr>
<td>Nominal Interaction</td>
<td>-1.522*** (0.382)</td>
<td>-1.469*** (0.315)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Interaction</td>
<td>0.315 (0.321)</td>
<td>0.282 (0.265)</td>
<td>0.137*** (0.027)</td>
<td>1.257*** (0.027)</td>
</tr>
<tr>
<td>Crowther</td>
<td>2.860*** (0.949)</td>
<td>2.843*** (0.784)</td>
<td>0.217*** (0.073)</td>
<td>0.0180 (0.072)</td>
</tr>
<tr>
<td>Income</td>
<td>1.018** (0.459)</td>
<td>1.006*** (0.372)</td>
<td>-0.102* (0.052)</td>
<td>-0.104* (0.052)</td>
</tr>
<tr>
<td>L.Income</td>
<td>-0.0345 (0.551)</td>
<td>-0.0479 (0.448)</td>
<td>-0.0528 (0.063)</td>
<td>-0.0462 (0.064)</td>
</tr>
<tr>
<td>L2.Income</td>
<td>0.827 (0.562)</td>
<td>0.816* (0.457)</td>
<td>-0.0207 (0.057)</td>
<td>-0.0424 (0.056)</td>
</tr>
<tr>
<td>L3.Income</td>
<td>0.101 (0.559)</td>
<td>0.124 (0.456)</td>
<td>-0.0348 (0.046)</td>
<td>-0.0247 (0.051)</td>
</tr>
<tr>
<td>L4.Income</td>
<td>0.775* (0.388)</td>
<td>0.766** (0.317)</td>
<td>0.0827** (0.032)</td>
<td>0.0644* (0.035)</td>
</tr>
<tr>
<td>Savings ratio</td>
<td>-0.633** (0.293)</td>
<td>-0.634*** (0.238)</td>
<td>0.0936*** (0.031)</td>
<td>0.0872*** (0.032)</td>
</tr>
<tr>
<td>L.Savings ratio</td>
<td>-0.360 (0.300)</td>
<td>-0.363 (0.246)</td>
<td>0.0895** (0.037)</td>
<td>0.0809** (0.039)</td>
</tr>
<tr>
<td>L2.Savings ratio</td>
<td>-0.768*** (0.274)</td>
<td>-0.768*** (0.223)</td>
<td>0.0162 (0.033)</td>
<td>0.0258 (0.032)</td>
</tr>
<tr>
<td>L3.Savings ratio</td>
<td>-0.466 (0.317)</td>
<td>-0.482* (0.259)</td>
<td>0.0339 (0.025)</td>
<td>0.0351 (0.027)</td>
</tr>
<tr>
<td>L4.Savings ratio</td>
<td>-0.325 (0.275)</td>
<td>-0.329 (0.223)</td>
<td>-0.0379 (0.024)</td>
<td>-0.0265 (0.024)</td>
</tr>
<tr>
<td>Corset restrictions</td>
<td>-0.241 (0.989)</td>
<td>-0.227 (0.809)</td>
<td>0.285*** (0.094)</td>
<td>0.239** (0.096)</td>
</tr>
<tr>
<td>Thatcher</td>
<td>0.660 (1.167)</td>
<td>0.679 (0.948)</td>
<td>0.324** (0.121)</td>
<td>0.286** (0.124)</td>
</tr>
<tr>
<td>D.Employment</td>
<td>0.00764** (0.004)</td>
<td>0.00763** (0.003)</td>
<td>-0.000185 (0.000)</td>
<td>-0.000330 (0.000)</td>
</tr>
<tr>
<td>House price Δ</td>
<td>-0.217* (0.117)</td>
<td>-0.213** (0.095)</td>
<td>-0.0428*** (0.010)</td>
<td>-0.0389*** (0.010)</td>
</tr>
<tr>
<td>L.House price Δ</td>
<td>-0.0540 (0.120)</td>
<td>-0.0541 (0.097)</td>
<td>-0.0213*** (0.009)</td>
<td>-0.0190*** (0.009)</td>
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<tr>
<td>L2.House price Δ</td>
<td>0.0341 (0.142)</td>
<td>0.0267 (0.116)</td>
<td>-0.00775 (0.014)</td>
<td>-0.00358 (0.013)</td>
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<tr>
<td>L3.House price Δ</td>
<td>0.264* (0.147)</td>
<td>0.256** (0.120)</td>
<td>0.0156 (0.010)</td>
<td>0.00967 (0.010)</td>
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<tr>
<td>L4.House price Δ</td>
<td>0.0312 (0.127)</td>
<td>0.0281 (0.104)</td>
<td>0.0166** (0.007)</td>
<td>0.0157** (0.007)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.217 (0.117)</td>
<td>-0.213** (0.095)</td>
<td>-0.0428*** (0.010)</td>
<td>-0.0389*** (0.010)</td>
</tr>
<tr>
<td>D.M4</td>
<td>-0.0000934 (0.000)</td>
<td>-0.000138** (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation interaction</td>
<td>0.0779* (0.041)</td>
<td>1.107*** (0.044)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.M4 interaction</td>
<td>0.000108 (0.000)</td>
<td>0.000146** (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.192** (0.466)</td>
<td>-1.205*** (0.388)</td>
<td>-0.100* (0.050)</td>
<td>-0.106* (0.058)</td>
</tr>
<tr>
<td>Observations</td>
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<td>74</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.686</td>
<td>0.686</td>
<td>0.997</td>
<td>0.996</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.533</td>
<td>0.532</td>
<td>0.996</td>
<td>0.994</td>
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<tr>
<td>Hansen J p-value</td>
<td>0.202</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>F test p-value</td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td></td>
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Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01
Table 3. VAR models and impulse-response functions of a shock in consumer credit on inflation and savings

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th></th>
<th>(2)</th>
<th></th>
<th>(3)</th>
<th></th>
<th>(4)</th>
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<tbody>
<tr>
<td></td>
<td>VAR Inflation</td>
<td>Granger Causality</td>
<td>VAR Savings ratio</td>
<td>Granger Causality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>ch2</td>
<td>Prob &gt; chi2</td>
<td>ch2</td>
<td>Prob &gt; chi2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.Inflation</td>
<td>1.312***</td>
<td>(0.096)</td>
<td>-0.0672</td>
<td>(0.499)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>L2.Inflation</td>
<td>-0.571***</td>
<td>(0.103)</td>
<td>-0.0195</td>
<td>(0.114)</td>
<td>0.0294</td>
<td>0.864</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD.Employment</td>
<td>-0.00206</td>
<td>(0.002)</td>
<td>1.1141</td>
<td>0.573</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>L2D.Employment</td>
<td>-0.0000801</td>
<td>(0.002)</td>
<td>1.1141</td>
<td>0.573</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.Consumer credit % GDP</td>
<td>-0.300</td>
<td>(0.298)</td>
<td>3.0097</td>
<td>0.222</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>L2.Consumer credit % GDP</td>
<td>0.445</td>
<td>(0.298)</td>
<td>17.83</td>
<td>0.001***</td>
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<tr>
<td>D.Employment</td>
<td>17.83</td>
<td>0.001***</td>
<td>7.0400</td>
<td>0.071*</td>
<td></td>
<td></td>
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<tr>
<td>L.Inflation</td>
<td>-6.669</td>
<td>(5.235)</td>
<td>15.835</td>
<td>0.000***</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>L2.Inflation</td>
<td>-6.665</td>
<td>(5.603)</td>
<td>15.835</td>
<td>0.000***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD.Employment</td>
<td>0.220*</td>
<td>(0.114)</td>
<td>0.220</td>
<td>(0.114)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L2D.Employment</td>
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<tr>
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Standard errors in parentheses
* p<0.10 **, p<0.05, *** p<0.01