

Changes of the New Economy. The influence of new modes of Retail Payment. *

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Abstract

In the present economic paradigm, Retail Payments are a huge part of all the commercial transactions in the market. So, the way these transactions are done, the efficiency they have and the capacity to create new niches for the payment industry have an important influence in the whole Economy. In the same way, the enabling capabilities of Electronic Funds Transfer for the New Economy, as no time and space must be shared by the retailer and the consumer, have an impact in the general Economy that can be analysed. In the present paper a discussion on all these issues is done giving further areas for deeper research.

1 Introduction to the New Economy

The law of Diminishing Returns was introduced in the 19th. Century by Ricardo, Thünen and Malthus as a result of the worries on the fact that the land was a factor of production in limited supply. In order to increase output from agriculture, farmers would have to farm less fertile land with more intensive production methods and both things meant less returns from the same work and costs. As an example consider the extraction of a mineral, let it be gas. The first ton has an associated cost of extraction of \$1 in a determined gas field. If we now want to extract another ton of gas the cost of extraction will be a bit greater, let it be \$1.5, because we will have to pump from a deeper position or because the gas will be not as pure and will be mixed with other components of the deposit and must therefore be separated. So, the marginal cost of the supplementary ton of gas is \$1.5. If the extraction of gas in the field is continued, this marginal cost will grow steadily, giving the

commented law. From the economic point of view this law considers that all the other factors of production remain constant and so, only one of them is analysed. We can consider the case of economies of scale, i.e. the main set of factors are increased, and the result are very different: a decreasing of the average cost of production can be seen. This is the case of the industrial age, where the build of great factories, mills, and specialisation of work was intended to follow these economies of scale that provided the reductions of costs.

In the late industrial age some improvements to these economies of scale are introduced giving place to flexible production and the reduction of stocks and superfluous costs.

In the knowledge economy things appear a bit different. Romer uses a metaphor to show up the difference. He says "The paper that makes up the cup in the coffee shop is a thing. The insight that you could design small, medium, and large cups so that they all use the same size lid – that's an idea. The critical dif-

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ference is that only one person can use a given amount of paper. Ideas can be used by many people at the same time." The fact is that ideas, i.e. Knowledge and information can be used by a lot of people at the same time and the distribution costs of ideas and knowledge is steadily approaching to zero, as the ubiquitous Internet connections show. In the same way software, one of the main goods of Information Technologies can be copied and distributed without limitation at a almost null cost.

Ideas, though, must be had by someone and the skills of people, and people itself, are limited by nature. In its theory of 1956 Robert Solow[17] analysed the growth theory and introduced a factor in the neoclassical theory that was related with the technological progress. Romer went a bit further[14] and gave to this "technological change" the character of endogenous. In his paper of 1990 developed a model that explained economic growth with this new factor and the main conclusion he extracted was the high dependency of technological change, and thus economic growth, with the stock of human capital of nations.

So, economic growth is strongly related with the skills and competences of people and this wealth must be enforced to grow. Although one of the main reasons for globalisation has been the increasing of the market dimension and volume, one of the first consequences was communication and interchange of ideas and people. It is not casual that the most open country in the past century, United States, became also the most prolific in ideas, science and technological knowledge. In Rosenberg's paper on Karl Marx[16] thoughts about economic role of science, he says that from Marx's point of view the application of science to the productive process meant get rid of the human, take the true tool from the hand of the man because science can only apply its technology to impersonal machinery. Now, and after the former comments, this is absolutely different. Again the human being comes to the very centre and represents

the point of investment, in training and personal development, to achieve the goal of knowledge creation and information processing as to improve his skills and give value to the environment (network) he belongs.

In its encyclopedic work[6], Castells shows how the network configuration of society, from enterprises to neighbourhoods, is a consequence of technological change. Information and Communication Technologies give the possibility to people of distant places to get in touch and share its knowledge, empowering their possibility to have new ideas and share them and that this is the main change provided by them.

Information and Knowledge, therefore, is the new good in the postindustrial society. The main features of this good are the possibility to reproduce at a diminishing marginal cost, through the fast evolving Information and Communications Technologies, and the need for the production of this good of a greater amount of human capital. An important consequence of this is that although reproducibility is cheap, it can be not desired. If exists the possibility to access to all the produced information and knowledge and no returns can be obtained from the very first production of this knowledge that, do not forget, has an elevated cost of production because the limited amount of human capital, there are no incentives to do it and economic growth can be compromised. This is the main cause of the need of intellectual property rights and patent laws that assure not just an earning from the paternity of an idea but the monopolistic situation in the start of the exploiting of the idea. This controversial issue, as appear in the work from 2002 by Romer[15], is a double-edged knife because if tough laws are redacted, innovation and creation can be reduced and again, economic growth compromised.

So, if ideas and knowledge are the main good of this New Economy, along with software

that is a materialisation of Knowledge, there must exist a way to trade them. In this environment is clear that a big role is to play what are called the Electronic Funds Transfer systems that allow, without the exchange of cash, a whole interchange of goods and funds, i.e. a commercial transaction[5].

In the present work a broad study is done of the key facts that define the New Economy and the influence that the retail payments have in these changes. New Economy is assumed for the whole scope of the work equivalent as Knowledge Economy so both terms will be used as synonyms.

Retail Payments are assumed to be any money transfer that has the object of settle a transaction of goods between a seller and a final consumer. Of course, these covers any kind of goods and ways to interchange them.

2 New Economy and Retail Payments

Retail Payments play a key point in the Economy. They allow that commercial transactions at the level of the final consumer occur. At the very beginning retailing was the Economy, although further development of trade converted it in just a part of it.

It has to be said that retail payments account for the most important part of the value in the global economy. As the consumer is usually at the end of the Value Chain of a product, it has to deal with all the costs and benefits underneath the product. Of course, the true value of retail commerce comes from the fact that a great volume of small transactions from the consumers sum in order to become comparable to the industry volumes that produce the goods.

Although there is no definitive division between retail and wholesale payments, retail payment systems generally have higher transaction volumes and lower average monetary values than wholesale payments systems. This

work, as was previously mentioned, verses on payments typically classified as retail payments. Consumers generally use retail payments in one of the following ways:

- Purchase of Goods and Services - Payment at the time the goods or services are purchased. It includes attended (i.e., traditional retailers), unattended (e.g., vending machines), and remote purchases (e.g., Internet and telephone purchases). A variety of payment instruments may be used, including cash, check, credit, or debit cards.
- Bill Payment - Payment for previously acquired or contracted goods and services. Payment may be recurring or nonrecurring. Recurring bill payments include items such as utility, telephone, and mortgage/rent bills. Nonrecurring bills include items such as medical bills.
- P2P Payments - Payments from one consumer to another. The vast majority of consumer-to-consumer payments are conducted with checks and cash, with some transactions conducted using electronic P2P payment systems.
- Cash Withdrawals and Advances - Use of retail payment instruments to obtain cash from merchants or automated teller machines (ATM). For example, consumers can use a credit card to obtain a cash advance through an ATM or an ATM card to withdraw cash from an existing demand deposit or transaction account. Consumers can also use personal identification number (PIN)-based debit cards to withdraw cash at an ATM or receive cash-back at some point-of-sale (PoS) locations.

The kind of goods that are related with the retail payments are of broad kinds and come from a lot of channels. They stand from grocery's to cars, passing by newspapers and services. Additionally they come from a retail shop near the home of the customer or either via

mail from the other side of the world after an Internet purchase. Sometimes the goods must be transported, physically or logically through computer networks, and sometimes they are just consumed.

The main function of a retail payment system is, so, to allow the exchange of funds. Either if it is cash, cheque or credit card, the result of a payment is that the goods provider gets some additional funds and the consumer gives some of them. The amount of the funds exchanged may not be the same. In some situations the retail payment system provider keeps some of the funds given by the consumer as a payment for the system providing services. In other situations the payment system provider acts also as financial provider and the full amount of the payment is given by it, expecting the consumer pay the amount and a plus as in a credit or loan.

So, for personal customers the key functions of a financial services provider in a broad sense is not just substitute cash but facilitate saving, borrowing and money transmission.

The delivery of personal financial services evolved through remote channels that have a broad implementation in society, via the Automated Teller Machines, Telephone Banking and in the last decade in Internet Banking. These initiatives are further developed as to provide them even in the Point of Sale. This Retail Financials enabled by the new technologies further demonstrate that essentially the financial services industry is about selecting, analysing and disseminating information and that financial services providers have as their prime asset, information about their customers. This information then can be used to maintain and enhance relationships with these customers and to thus hopefully retain their patronage, whilst effective use of the available distribution channels can be used to develop new customers[22].

This situation produces changes in the Value Chain of retailing. If in the previous times the main Retail Payment objective finished once the transaction was completed, the banks now face a considerable competitive threat from retailers. Retail organisations are increasingly important business enterprises in their domestic economies and increasingly international in their operations. Retail organisations have become increasingly sophisticated in their marketing strategy. Information technology systems have provided them with the means to introduce bank facilities which they would not have been able to implement until relatively recently. Organisational growth has given them the ability and reputation to address customer banking needs, while operational and technological developments have given them the capability to deliver those banking needs.

This is producing deep changes in the triadic relationship between customers, retailers and banks. These movements in the value chain by the retailers, the ability for customers to choose between a broad number of alternatives, thanks to competition in retail industry and powerful information sources like Internet as well as the comoditizing of the banking products, has increased the ability for retailers to respond to financial service opportunities at their own point of sale[1].

All these configuration changes in the activities done by retailers, as well as the reduction of operational costs in the management of transactions, like ordering, selling or payment, have contributed to a positive perception by retailer changes in performance[8] that have made them to be more confident in deploying new and broader systems that improve again all the operational productivity.

This perception of better performance in operations is additionally influenced by the fact that the mode of payment is found to influence the process of buying. Of course, in the case of

financial services, they appear as enablers of a transaction that otherwise would not have happened. But in some studies the mode of payment is demonstrated to influence also the consumer perception of the price[13]. This perception deeply influences the final decision of the consumer to finally buy the sold good. These two cases support the idea for the retailer that the offer of different modes of payment positively influence the results.

All these show that retail organisations are reducing the interaction and communication that banks have with their customers. Relationship marketing theory is then used to understand the implications that these scenarios pose for banks. The second analysis is at the business-to-business level. The application of the concept of relationship marketing at this level suggests that banks and retail organisations should focus on co-operation rather than competition. Strategic alliances are proposed to enable both parties to achieve more together than individually[7].

To end with, it can not be left aside the appearing in the last decade of some new modes of payment intended mainly to be suitable for the virtual environment of the ICT networks. It is the case of PayPal or other modes that operate only in the virtual world. These modes of payment are very important because support the other classic, although supported by the ICT, modes in empowering the exchange of pure Knowledge Economy products through the communication networks[11].

These products include, as was mentioned in the introduction, digital-like products as software, music, films, documents or even data or services. The fact that these products may be exchanged without a coincidence in space and time by the seller and the buyer influences the nature of the transaction in a way that a new mode of payment may be easily introduced in order to increase the efficiency of it.

Of course, as has been said before, these new methods of payment compete even with the classic ones that also allow the Electronic Funds Transfer, like credit cards or electronic banking.

An special mention has to be done to another set of payments that in any way or other include the Mobile Phone. There has been a great effort to trial new modes of payment based in the mobile platform and infrastructure[12].

These initiatives have found a lot of difficulties in their roll out. Basically the great investments and the fact that the expected benefits would not amortise them in a brief time have prevented the technology to achieve a broad penetration. Anyhow, changes in the stakeholders of such deployments and in the strategy and business cases involved would make this new mode of payment more appealing[18].

3 Figures of Retail Transactions

Once seen the changes introduced by the new modes of payment in the economy at the micro level, some figures and facts of the payment sector will be analysed. This analysis will come at two levels. First a sight into the figures of the oldest of this new modes, the credit card and close others like debit cards. Along with it, another look will be held at the evolution of payment sector and a its relationship with general economy in order to show up the link between them.

3.1 Plastic Cards Figures

In the period that goes from 2000 to 2006 the use of cashless payment instruments has steadily increased. Following the publication of the European Central Bank[9] the number of cashless payment transactions (by non-banks) in the EU rose by 7% per year on average, while

the value of such transactions rose by 5% per year.

As for 2005 the figures from the UK payments association (APACS) indicate [2] that in the UK the number of total transactions was of 40 trillion. From it, just 24 where on cash. The remaining where done via plastic cards, cheques or electronic means of payment. For the retail sales volumes, the figures of plastic cards payments did surpassed the total amount of cash payments in lately 2002. At present, 2007, plastic cards payments almost double the total of cash as can be seen in the figure 1

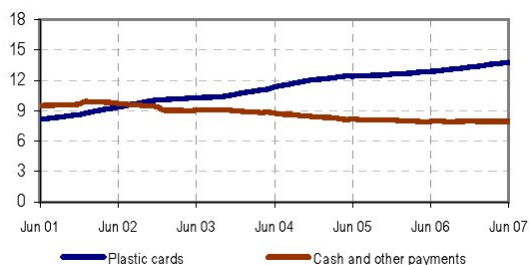


Figure 1: Volumes of spending in retail sales. Monthly spend in billions £[2].

In the case of Spain, the figures from the central bank of Spain (BDE) show again an steady increase year over year. In figures 2 and 3 this fact is stated.

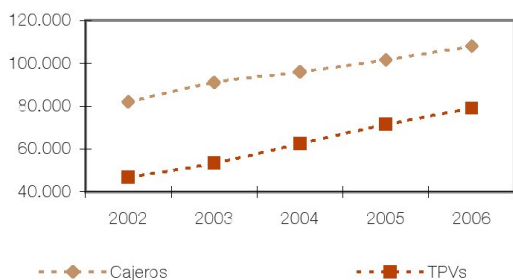


Figure 2: Volumes of payments at ePoS and withdrawals from ATM in millions euro[3].

Is easily seen how the total amount of payments and withdrawals increases at a faster pace in the case of PoS payments than for ATM withdrawals. Further on it, as the number of PoS is some-fold increasing against ATM, it

can be inferred that the mean volume of each payment in the PoS is increasingly smaller, so the penetration of the plastic mode of payment is also conquering smaller payments, that are the natural camp of cash transactions.

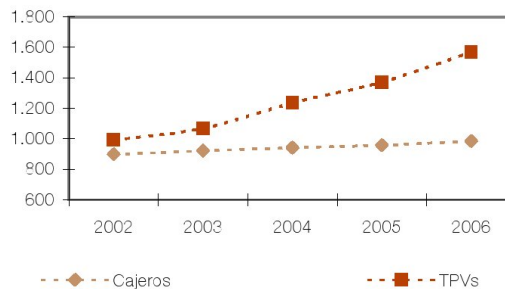


Figure 3: Number of payments at ePoS and withdrawals from ATM in millions[3].

To end with, a look to the most dynamic economy has to be done. In the United States the retail system presents a different landscape. The check is a very implanted mode of payment, and has been from a lot of time. The fact is that the convenience of the checks in order to pay in front of cash has been a difficulty for the electronic modes of payment to get in the arena. Anyhow, in recent 2004 all the electronic modes of payment accounted to 44.5 billion whether the checks payments reached 36.7 billion [10]. Notwithstanding, the total volume of check payments surpassed this of electronic modes in \$ 12 trillions.

Having a look to the evolution of this figures, the decline of check based transactions is happening at a 4.3% annually whether the increase in electronic ones is 13.2% in the period 2000-2003.

3.2 Payments and General Economy

Having again a look to the figures from the ECB, it can be seen that the number of transactions processed in retail payment systems in the EU has been growing steadily over the past few years, at an average rate of over 4% p.a., as illustrated in figure 4. At the same time, the value of those transactions has grown at a rate of slightly more than

3% p.a., which is somewhat weaker than average nominal EU GDP growth over this period (which stands at close to 4% p.a.)[9].

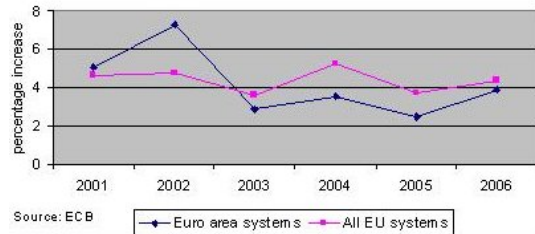


Figure 4: Data of the growth of retail payment systems

This happens in a period of great growth for the world economy, the 2000-2003, after the Asian market crisis and the crash of the world stock market bubble.

E-Commerce sales in the U.S. have been also increasing as can be seen in the figure 5, reaching \$83 billion and a 3% of the total sales in 2005 as the U.S. Census Bureau shows[19].

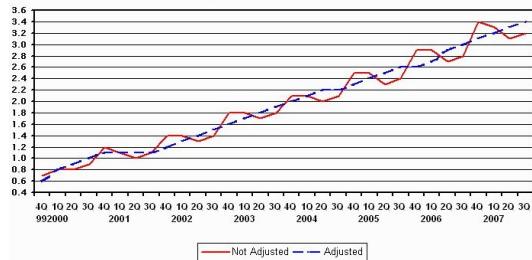


Figure 5: Percentage of total sales that are electronic in the US[19]

In the case of Spain, data from the central bank show how the total figure of e-commerce has gone ten-fold in the period 2000-2005, as can be seen in figure 6.

As some authors have commented, the technologies of payment, rather than the technologies of connection, are the real trigger for the expansion of electronic commerce and this is why Internet has been the focus for a plethora of new developments in this area[4].

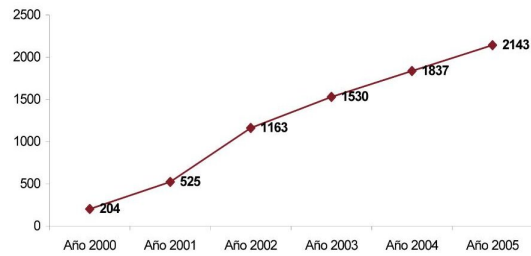


Figure 6: Volume of total electronic sales in Spain. Millions Euro[3]

Some important data from the global economy point of view, is that of the costs of handling cash. According to APACS there were an estimated 16,100 million cash transactions over £1 in value in 1994 and their best guess is that there was an equal number of cash transactions below £1 in value.

The major costs of cash payments relate to protection, collection, counting and carrying, all of which mean time and effort; insurance also costs money and banks in addition charge retail businesses for paying in cash to their accounts. In the case of UK in 1994 costs of cash transactions reached £167 Million[21].

4 Conclusion

New modes of payment are steadily replacing the classic cash mode of payment in retailing as has been showed in the present work. It started in some countries with the credit cards and evolved to the new Electronic Funds Transfer systems, that allow the settle of a transaction instantaneously. The benefits from this rational use of the ICT technologies, reducing the costs for the economy in cash handling and securing, influence positively the whole economy. Additionally, and although actual figures are hard to obtain because is hard to isolate the sector, all the industry behind the EFT systems of payments is extremely based in activities intense in knowledge, what generates an increase in productivity, because although cash handling can be efficiently performed, it is time and human effort consuming what makes

it hard to show increases of productivity at the level of knowledge activities have.

It has been hard to link economic growth to new modes of payment for retailing from the figures, but a soft link has been stated as EFT allow to reduce transaction costs in a global way, i.e. they may increase the cost at one transaction level, but reduces significantly the costs of securing, handling and carrying cash from a global perspective.

In another dimension, it is clear that this new modes of payment are also enabling the Knowledge Economy exchange its goods in the global market. Of course, classic modes of payment for P2P payments like the postal ones would be available, but the dynamics of this new transactions of goods deal better with EFT. There are no segregate data about the different modes of payment for intangible goods in Internet, but it seems rather that the broad use of new EFT systems is involved.

Notwithstanding, cash is still out there. Although in the works previous to the 2000 the end of cash was barely predicted[20] it has not

been this way. Cash still has a lot of characteristics that make it for the consumer, and the seller!, preferably in some situations to cash-less payments. As the figures provided in the present work have shown, EFT are increasingly replacing cash in some of the situations, but not at an exponential pace, but a linear one.

As has been commented previously, it would be a great leapfrog to have segregate data of the different modes of payment in the electronic commerce. Although their figures are not yet important against the total of retail sales, it could be very interesting to analyse the enabling paper of the new modes of payments in the pure electronic exchange of goods. In the same way, a deep work may be done in analysing the actual value of the payment industry in the economy.

To end with, and as a direct outcome of the work, it can be said that new modes of payment will rise in the coming times for retailing, but from the present perspective, it will take a lot of time to replace all the modes established at the moment.

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