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ITALY: A CASHLESS SOCIETY?

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ANNO ACCADEMICO 2017-2018

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Introduction

This thesis proposes to give a comprehensive view on the different benefits and costs that Italy would entail if the government would eventually decide to become a cashless society. Since there are not trustable data on Italy as a cashless society, this thesis provides a complete set of informations starting from solid roots such as the book “The Curse of Cash” by Kenneth S. Rogoff from which the thesis takes its inspiration from.

The argument takes its relevance from the benefits that any economy in the country would get if more of the transaction from cash based, become electronic.

After having disclosed those that are the main points that any country should consider if it wants to get rid of cash, the thesis shows the actual effort that Italy is materially taking to shift to cashless payments. This is done through the annual report of the European House Ambrosetti, an organization of different companies involved in the banking or cashless sector.

When cashless society is mentioned, it is inevitable to cite Sweden. The northern country is probably the one closest to become a cashless society and it offers suggestive points of discussion. The thesis takes the Swedish example as a stronghold from which to start, not forgetting to consider the differences in culture and history between the two nations, and the issues that even Sweden is encountering in this transition phase.

Finally, in order to put beside the theoretical part with some consistent and concrete results, the thesis discloses an econometric paper, characterized by an innovative method in calculating the underground economy. This paper has been written by Ardizzi et al. for the Bank of Italy and it is called “Measuring the underground economy with the currency demand: a reinterpretation of the methodology, with an application to Italy”. Its innovation stays in incorporating in the model for the first time an illegal component. The results, besides giving important informations on Italy’s underground economy, will give important insights about cashless payment’s effect on the latter. In the end, through the econometric analysis and the various statistics about effect of cashless transaction on the Italian economy, in this case, it is possible to state that definitely the advantages of a cashless society outweigh the cons.

Chapter 1

ITALY CASHLESS

1.1 Marginal role of cash and illegal purpose

According to the latest report of Copenhagen School of Economics, Sweden will become cashless within 2023, meaning that the state mint will stop minting any banknotes or coin by that time¹.

This should not come as a surprise. The way money is exchanged kept evolving over the years and the technologic wave started in the mid-nineteenth century, step-by-step firstly in 1965 with the introduction of cheques and in 1975 of credit cards, lead to new ways of making payments. The latest example of e-money comprises two firms like Mpesa and PayPal founded in the new millennium leading the way to safe and quick payments thought Sim cards, Mpesa and Internet and One-time password PayPal². The latest innovation of cryptocurrencies born with the idea of eliminating financial intermediaries and guaranteeing safe and transparent transactions, is only making the transition to cashless faster.

At the same time, historically and culturally in Italy which is the third economy in Europe³, cash has been, and it is largely used, being the most common way to do transactions. In 2017, Italian citizens used a cashless payment method only in the 14% of the payments, moreover from 2016 to 2017 the circulation of cash increased of a 3,8%, passing from 190,4 to 197,7 bln⁴

From an economic point of view, it is worth analyzing currencies and especially their effect on monetary policies; however, phasing out cash becomes less tragic by realizing that modern

¹ The Guardian, (2016)

² Birch, (2017)

³ Financial Times, (2018)

⁴ Financial Times, (2018)

Keynesian macroeconomic models either ban cash or give it a marginal role⁵. Central bankers may discuss about interest rate policy and how it affects inflation, growth and unemployment; and not even consider cash issuance until it come to revenues.

Why should Italy remove currency, making only electronic money circulating?

This is the first question to answer and it does lead to the two big topics of Tax and Underground Economy which are the most important, but not the only ones.

It was estimated that in the United States, giving the currency circulating and the households, there is roughly \$4200 per capita in cash of which the 80% in \$100-dollar bills⁶. From interviews on cash holdings, it is clear enough that people resulted to hold on average a sum of cash way lower than \$4000, of which very few were \$100-dollar bills.

In addition to this household survey, the ECB also conducted a corporate survey. From it the ECB concluded that individuals and companies together held about 100 billion euros out of the 750 billion total euro currency outstanding at the end of 2008. Thus, like the United States, most of the demand for euro paper currency cannot be accounted for by legal domestic holdings⁷.

Central banks clearly know that by printing more cash, a consistent part is going to end up in the underground economy, so why do they keep on doing so?

Cash is the most common way to make transactions, and it has been so, for many years. A complete transition to cashless would inevitably hamper the smooth course of day-by-day transactions of all that part of the population, such as elders and poor, considered to be less technologically alphabetized or simply unable to afford to open a current account⁸. Moreover, Central Banks get most of their revenues from seignorage. In the modern-day world seignorage is a process divided in

⁵ Rogoff, (2016)

⁶ Ibid.

⁷ Ibid.

⁸ Panorama, (2012)

3 steps. In the first phase, the government spends more than it earns (tax revenues) and issues debt to make up for the difference. The second phase involve the central bank to issue electronic bank reserves and uses them to purchase government debt. In the third stage, the central bank turns all the excess profit to the government⁹. Revenues from seignorage can also come by accommodating growing transactions demand, usually linked to underlying growth in the economy.

Furthermore, demand can rise when a generalized fall in interest rates takes place, reducing what economists refer to as “the opportunity cost” of holding currency, in other words imagining cash as a bond yielding zero interests and comparing it to a government risk-free bond, when interest rates fall, the difference of return between them becomes narrower and thus, keeping a zero-interest bond is cheaper than before¹⁰.

ECB’s revenues on seignorage are estimated to vary between 10,5 billion to 56 billion over seven years ¹¹and in the US corresponds to the 0,25% of the GDP¹².

Although the sum seems huge, many estimations argue that the loss of seignorage may be compensated by a fall of 10-15% in tax incompliances, a modest number if we believe that getting rid of cash is going to humper the normal activity of tax evaders and the underground economy¹³.

Criminals will find different way to circumnavigate the phase-out problem, for instance by using diamond, gold and other commodities, but the transaction cost would be higher at least in the short-run and regulations are already tight for this kind of commodities. That’s why in the late 1980s, offshore financial centers became so popular among drug dealers willing to launder the money coming from illegal activities.

⁹ Rogoff, (2016)

¹⁰ Ibid.

¹¹ European Parliament, (2018)

¹² Rogoff, (2016)

¹³ Ibid.

1.2 Money Laundering

After the 2008 crisis, public debt in Europe skyrocketed and those countries concerned, had focused on tax revenues, shifting their spending from public goods like infrastructure toward the financial sector¹⁴. Many citizens perceived this shift to be unfair and at the same time, whistle-blowers started to promote offshore financial centers as an efficient way to launder money.

There are three different method in which money from being “dirty” can go through the financial system, making it very difficult to trace them back. The first one is the use of the financial system (either in a formal way such as money transfers or banks, or in an informal one like “hawala”¹⁵).

The second involves the use of a courier or container for cash, while the third one consists in hiding the money source in import-exports activities or simply through an exchange of goods and services.

The process of money laundering itself is shown in a simple way in Figure 4 which displays the three phases of money laundering.

- 1) Money is deposited at a bank, being part of the turnover of a legal activity or smuggled over a border
- 2) After money enters in the financial system and circulate over and over to make it complicated to trace them back, then, offshore centers come into play. After money have been safely deposited in a normal bank account, they are transferred to the bank account of Company X. Subsequently, money is transferred via wire transfer to an offshore center. Then, the offshore bank grants a loan to a shell company¹⁶ Y which pays the initial sum for false invoice to Company X.
- 3) In this last phase, called the “reintegration phase”, the clean money is integrated back in the

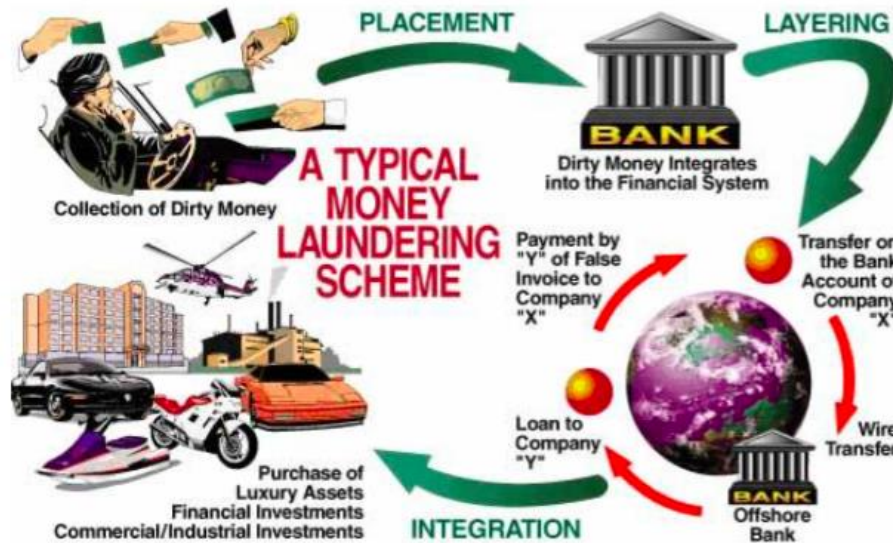
¹⁴ European Parliament, (2017)

¹⁵ Hawala is method of transferring money without any money actually moving and it is based on trust.

¹⁶ A shell company is a company without active business operations or significant assets. A shell company is not per se illegal, but it is often use as a fictitious company created for the only purpose of making transactions among different firms credible.

national economy paying for luxury goods, commercial activities or financial instruments. Who launder the money usually tend to park it close where they live, like the Chinese Mafia in China or in Chinese neighbors in the USA¹⁷

Figure 4: The three phases of money laundering



Source: UNODC (2006), <https://www.unodc.org/unodc/en/money-laundering/laundrycycle.html>

Which are the countries that are more attractive for money laundering? Launderers enjoy those market that they can trust, with low corruption, high secrecy and lax anti-money laundering regulations. According to data gathered by ECOLEF and reported by the European Parliament (2017), the UK is ranked first for laundering with 282 billion Euro, followed by France, Belgium, Germany, Luxembourg and Netherlands¹⁸. Of the \$7,8 trillion of global wealth offshore, Europe keeps \$3 trillion, followed by Asia Pacific (\$1,8 trillion) and, Middle East and Africa (\$1,4 trillion).

¹⁷ European Parliament, "Offshore activities and money laundering: recent findings and challenges", 2017

¹⁸ European Parliament, "Offshore activities and money laundering: recent findings and challenges", 2017

We shall return to the underground economy later, to focus on the phases that Italy has to undergo in order to become cashless.

1.3 Italy cashless

In this section, taking inspiration from Rogoff's "Curse of Cash", they are described the general steps needed for any country to become cashless, in this case a greater focus would be given to Italy.

In a preliminary phase, the higher denomination notes shall be ceased to be produced. From a logistic point of view, they work as a store of value, are rarely used and unnecessary in common transaction, plus they are easier to collect, stock and move as they carry a high value in a such a low weight. Making an example, 10 million euro in 500 euro banknotes weight about 22 kilograms, with the 100 euro one, the weight would be 5-fold (110 Kg), and so on. It is obvious that the largest banknotes facilitate illegal transactions since, as both survey on US and EU illustrated before, are very few the ones possessed by common people, even though statistics shows an upward trend in supply at least recently.

In fact, European Central Bank seems to have taken the reasonable step to stop producing the 500 euro note (also called the "Bin Laden" since it has rapidly substituted the 100 dollar note in the underground economy¹⁹), starting from the end 2018. The violet note still remains a legal tender, but it won't be produced anymore by the ECB. This is a reasonable step to begin with, but it is just the start. A cashless society does not by all means has to phase out all cash. In a less extreme case, all the coins and the 5 and 10-euro notes would still be circulating, in order to help little transactions working during the process, especially in those areas where technology and infrastructure are still to be developed.

¹⁹ The Guardian, 500 euro "Bin Laden" banknotes to be axed, 2016

1.4 The 4 points of discussion

After the first step of phasing out all large denomination notes, leaving only the small ones (from the 10 or perhaps the 5 note downwards), then, the Italian government intervention is necessary in order to provide people large subsidies for bank accounts and even smartphones or devices to make and receive payments. The third step is about regulation and about privacy. Privacy is a delicate argument which needs to be argued in detail. And finally, real-time clearing is needed. It seems a technical step, but it is fundamental.

1) Universal inclusion (subsidies)

A Survey revealed that in the US 8% of the household do not have a bank account and 25% of the adults do not possess a credit card²⁰. There are several reasons why they do not, or why they use different methods outside the banking systems like prepaid cards or pawn shops, however ultimately the cost of financial exclusion is extremely high. Paying 10-15% of the total sum to send funds abroad, increasing theft probabilities by storing cash, is one of the disadvantage of being out of the system.

That's why eventually Italy as a cashless society in the long run, through subsidies should guarantee to the low-income population free access to bank account and even devices to make and receive payments. The system would be progressive, guaranteeing fee-free account up to few thousand Euro and even a positive return on these accounts. The cost would be relatively modest for Italy, around \$4.2 billions (calculation done symmetrically to the US, considering 400\$ of cost for each account multiplied by 10,5 million which is the number of poor revealed by Istat in 2016). Again, there are costs, but then, it would be possible to find a way to shift these costs to banks and then to tax payers.

²⁰ Kenneth S. Rogoff, "Curse of Cash", 2016

Financial inclusion would help smoothing income inequality, and there are simply not enough reasons to keep currency circulating. Privacy is one the main concern, but through other commodities, small notes and regulated cryptocurrencies, people may have a valid set of choices, other than electronic money.

2) Privacy

Of all concerns, this is the trickiest. It is necessary to find a balance between people rights and government need to enforce the law²¹. Going cashless would have significant advantages for countries' intelligence in discovering potential threatening and unjustified high payments, and it is hard to believe that they would give up this power. The privacy problem in a cashless society is yet to be discussed, but people are already dealing with similar issues in the social media sector, so it is worth hypothesizing a solution. For example, the Italian government could assure complete security for certain type of current accounts up to a fixed threshold. In theory, the Italian government could guarantee the bank account to be private, but the deal would have the same value of the paper it is written on²². They would always want a backdoor or know the way to get in the account even if encrypted²³. This is something that goes out from any economic argument and has to be discussed in detail by institutions.

3) Real-time clearing

For countries like Italy where people are used to manage cash daily, the greater issue stays in the real-time clearing of payments.

On-going technology made giant steps on payments and recent broad discussions about cryptocurrencies just made the process faster. The all payment system has been rarely innovated in

²¹ Rogoff, (2016)

²² Ibid.

²³ Ibid.

the last 20 years and cryptocurrencies seem the shock it needed. The expectation is to be able in Italy in a few years (even months) to make real time transaction between bank accounts and use P2P services on a daily basis. The aim is that at an increasing scale, fees for money transfers between accounts will be way lower and the all system will fasten getting as close as possible to the velocity of cash exchange²⁴. In countries like Sweden and Denmark pioneers of electronic payment innovations, smartphones apps for P2P money exchange are proliferating. Why are they giving up cash? They don't need it; phone's payment and contactless card now allows quick payments even for a candy or a couple of pens in the store in the neighborhood.

Italy is left behind when comes to credit card payments, the average payments per person each month are 31, against the 72 averages in Europe²⁵. Statistically most of the shops in Italy are equipped with POS, so what are the reasons to keep on using cash so much?

What it has always surprised, it is the reluctance of Italian shops and cafés to accept payment under a certain amount (usually around 7-8 Euro average). There is no other explanation than to say that fixed costs for each payment results too high when it comes to micro payments. Each bank has its own fees for POS, none of them seem to show a progressive system, but only a percentage on the amount received or paid. Since the system of fees on POS wasn't clear at all, finally from September 2017, POS became mandatory for every commercial shop directly in contact with consumers, scaling the minimum amount receivable from 30 to 5 euro, with consequent fines of up to 30 euros for who does not fulfill the law²⁶. Together with the POS obligation will come on play a reduction in usage cost fixed at 0.2% for debit card and 0.3% for credit cards²⁷. The timing of the reform goes hand in hand with the evolution of the payment system, surely helping consumers and retailers in making day-by-day transactions more easily.

²⁴ Rogoff, (2016)

²⁵ European House Ambrosetti, (2016)

²⁶ GuidaFisco.it, (2018)

²⁷ Il Sole 24 ore, (2017)

Innovations need time, and more time will be needed by Italy to become a cashless society. As statistics suggest, Italy has one the highest circulation in Europe of cash²⁸. It is not difficult to understand why it is so used, it is tangible, it does instantaneously clear out and it is undeniable that people have trouble in tracking how much they are spending using e-money. For this last reason, different apps have been developed to create a personalized program for spending, either weekly or monthly. Alternatively, it could always be used an independent card with a limited amount of money chargeable directly from the main bank account. If it gets lost or duplicated at least it is only a fixed amount²⁹.

4) *Security*

Many people are reluctant in using cards because scared of credit card thefts. Innovation like PIN code has made simple thieves much more difficult, but this is more of an American concern³⁰. The complexity of robberies will evolve, and anti-measures will be taken. It happened for coinage and cheques, it sure will for e-money payments.

In fact, many academics believe that the true innovation is not in cryptocurrencies, but in the Blockchain. The Blockchain allows instantaneous and 100% sure transaction with low cost, much lower than classical transfer commission. The idea of the creator who still remains unknown, was to bypass the 2 steps passage that happens in classical inter-bank transactions. It is 100% sure because the Block chain is installed in thousands of computers around the world and going back to the original transaction and change it would cost billions of dollars, although the transaction is clear and visible for everybody³¹.

In current days, before further development of the Blockchain, tech companies are already

²⁸ European House Ambrosetti, (2016)

²⁹ Rogoff, (2016)

³⁰ Ibid.

³¹ IBM, (2017)

implementing various security deterrents like facial recognition, fingerprints etc³².

Since, most of the e-payment at least in the present time are made directly with a credit, debit card or with an account associated to it, it appears to be fundamental in order to protect people's savings to safeguard these cards from those with malicious intentions.

Just recently, Il Sole 24 ore (2018) has reported of a complex scheme that leads to cloning of credit card in Italy to then, withdrawal of money in countries like Indonesia, Belize and Jamaica, where ATM machines only requires magnetic band for acceptance³³. However, cloning the card is not enough. In fact, in order to make withdrawals, also the PIN code is needed, and the Italian police has discovered that at the ATM machines have been installed micro-cameras or even malware able to replicate all the data of the cards inserted in that machine³⁴.

Nevertheless, Italy shows an encouraging -1% in credit card frauds in 2016 with respect to 2015, as reported by Ecommerce News (2017)³⁵. The countries which are facing the greatest difficulties are Sweden (+18%) that is the country with the highest percentage number of electronic payments in the world with respect to GDP³⁶ and, UK and France. These two account for the 73% of European card frauds³⁷.

Italy has shown, given an analysis of the Ministero dell'Economia e delle Finanze (2016), an increase in the frauds happened with internet transaction between 2014 and 2015 (+5,08%), but a more than positive trend for frauds regarding POS (-26,54%) and on ATM (-9,06%)³⁸.

³² Rogoff, (2016)

³³ Il Sole 24 ore, (2018)

³⁴ Il Sole 24h, (2018)

³⁵ Ecommerce News, (2017)

³⁶ Bank of International Settlement

³⁷ Ecommerce News, (2017)

³⁸ Ministero dell'Economia e delle Finanze, (N° 6/2016)

1.5 Emergencies

Emergencies happen. In Italy, the earthquakes in L'Aquila in 2009 and Norcia in 2016 are clear examples. Clearly in these situation, where blackouts and shut downs of electricity and phone lines are almost sure, cash is for the moment the only solution. Said that, in difficult situations even cash may be difficult to use. Adopting independent generator in order to use electronic devices even in those conditions, is a clever idea in a catastrophe and in days where people use their phone frequently, it can be thought as more cost effective to use a power bank to charge the phone than to keep hundreds of euros close to hand³⁹.

Most of the time, the major issue in case of emergencies in whether to provide money to people in the form of cash (e-money in a cashless society) or in the form of in-kind assistance, namely food, clothes, etc. In Asia, countries like Thailand, India, Sri Lanka and Indonesia in 2004 in response to the tsunami in the Indian Ocean have provided mostly cash to the disadvantaged people. Cash has proved to be more cost-effective in transportation, in flexibility and nutrition⁴⁰. At the same time, the difficulty of logistics, the anti-social use of money such as buying alcohol and drugs, and of targeting only the people who really need aids, represent the other side of the medal of cash aids in emergency cases⁴¹.

³⁹ Rogoff, (2016)

⁴⁰ Paul Harvey, (2007)

⁴¹ Ibid.

CHAPTER 2

EFFORTS TOWARDS A CASHLESS SOCIETY APPROACH

2.1 European House Ambrosetti

What kind of effort is Italy doing to follow up Sweden for what concerns electronic payments?

On the front line for the Italian community stands the European House Ambrosetti, merely a community of experts coming from different backgrounds, all believing in a future where Italy is cash-free.

The main objective of the organization is to strengthen the dialogue and effort exchange between all parties involved in the payment system, the industry, the entrepreneurial and institutional community in order to promote knowledge and ideas for a cashless society.

Among the several goals, the Community has the willing to create a permanent sharing platform with the aim of constructive discussion, to be the intermediate through which goals are achieved, to make more accessible the exchange of experiences and to create a qualified networking between the Community and the private and public stakeholders.

Created in 2015, the Community since the beginning recognized the lagging of innovation and the slowness of change in the Italian system. The average number of the electronic transactions per capita in Italy is 33,5 with respect to the European average of 93,2⁴², according to their estimation.

Classified fourth last by the Cashless Society Index (CSI 2016) among all countries in the EU-28, Italy stays beyond the major competitors such as Spain, Germany and France. Moreover, the most worrying data is the speed at which Italy is moving to cashless, scoring 6,6 over a European average of 24,3 based on the Cashless Society Speedometer⁴³.

⁴² European Central Bank, (2016)

⁴³ European House Ambrosetti, (2016)

It is worth remembering some facts about Italy's usage of cash which constitute the 83% of all transactions and represents the 10,6% of the national GDP (with respect to an average 9,7% in the Euro area)⁴⁴. The cost of managing cash for the Italian economic system is 0,53% of GDP and from an economic standpoint cash has the highest costs than any other medium of payment⁴⁵. In fact, cash has a pro-capite cost of 133 Euro/year compared to the 11 Euro/year of credit card and 18 of debit ones⁴⁶.

The Community estimated that Italy by reaching the European level, could save 1,5 billion per year. The fiscal evasion costs Italy 47,5 billion a year and a reduction of just 3-4% of the shadow economy could mean a recovery of 40 to 75 billion euro⁴⁷.

A higher diffusion of electronic payments is estimated to stimulate consumption (+0,18%) in the medium run, guaranteeing greater security in transaction and stimulating innovation and technology given higher investments.

The Community's strategy for the transmission of cashless payments is based on 5 points which are considered priority:

- 1) Sensitization⁴⁸, information and education of the utilizers
- 2) Communication campaign intended at informing on payments, a national program for financial literacy designed for the younger and the older generation, rationalization and regulatory simplification and removing the regulative limits on the credit card's usage
- 3) Security for electronic transaction
 - Adopt as an alternative and not as a substitute the Public System for the Digital

⁴⁴ Bank of Italy, (2016)

⁴⁵ Collaboration of Central Banks of Denmark, Estonia, Finland, Greece, Ireland, Lettonia, Netherlands, Portugal, Romania, Spain, Sweden, Hungary

⁴⁶ Elaboration European House Ambrosetti on data Bank of Italy, 2012

⁴⁷ Istat and Eurispes

⁴⁸ The process of making someone react to something that previously had no effect (Source: www.Vocabulary.com)

Identity (SPID)⁴⁹.

- Start an action for a free use for consumer of advanced real-time notify systems both incoming and outgoing.

4) Innovation and competitiveness

- Create the condition for a proactive environment guaranteeing a florid soil for start-ups and fintech

5) Factors accelerators

- Make electronic payments possible toward the Public Administration, implementing a gradual switch-off in the medium run for matters like public transportation, sanitary services, tickets and scholastic expenses

Although all the discouraging data, cashless payments in Italy have grown between 2013 and 2014 by 19,3% (13 bln) given by positive growth in e-commerce both by private consumers (demand) and by Italian firms (supply) and the use of internet banking services, and the higher electronic payment solution available.

Great contribution to this phenomenon is due to new innovative payment services such as mobile POS, contactless cards, mobile phone's payments, while P2P systems very popular for example in Sweden are still a minority (10 mil euro in 2015).

⁴⁹ SPID (Public Digital Identity System) allows citizen to access to the different administration services with only digital identity, hence, one account and password. Its use would allow local administration to remove locally-managed authentication services, saving maintenance and password provision costs. (Source: Valerio Paolini, Digital Transformation Team, 2018)

2.2 Benefits of electronic payments

Having a society which is cash-based prevents it from exploiting its full potential. Associated with the development of electronic payments there are several advantages and benefits:

1. Reduction of the cost of cash
2. Emersion of the underground economy
3. Increase of the consuming cycle
4. Security of transactions
5. Stimulation of consumption

Reduction of the cost of cash

Any medium of payment has some related costs and these are called “social costs”(ex. Transaction costs, commissions paid to intermediaries).

In the case of cash, these are calculated by the Bank of Italy to be higher than 15 bln (1% of GDP), while those coming from credit and debit cards do not even reach 18 euros per capite (0,07% of GDP).

Thus, cash is the mean which keeps the highest circulation costs and these costs are beared mostly by Banks and Institutions (60%) and the rest by single firms and consumers.

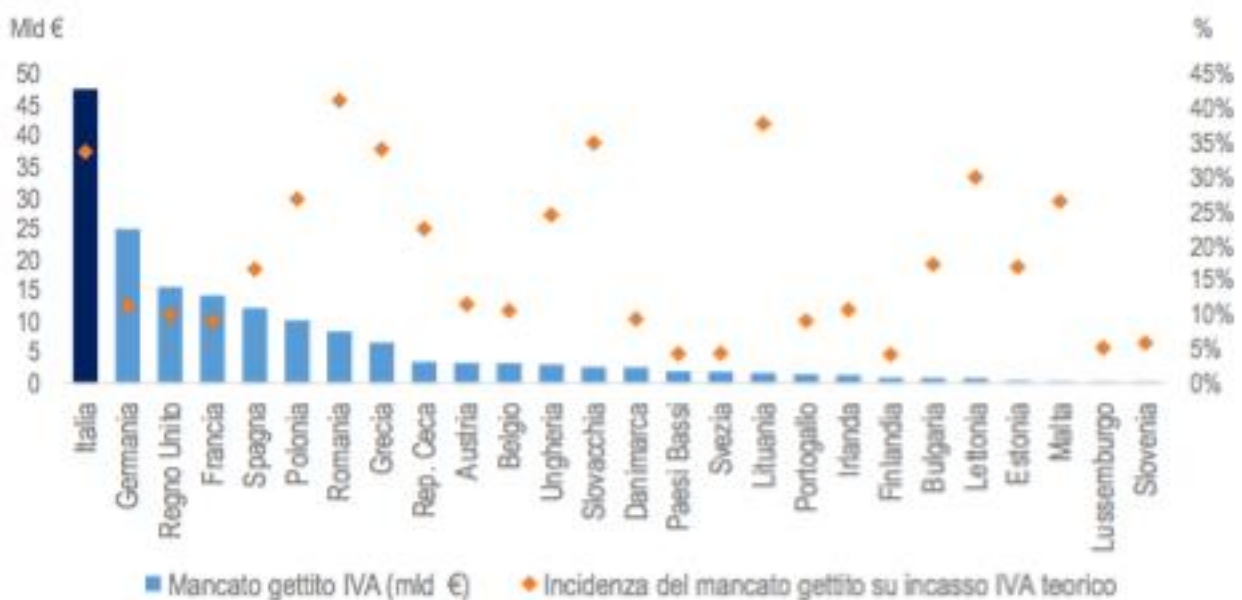
Emergence of the underground economy

Higher diffusion of cash is always highly correlated with a higher degree of underground economy. According to several researches brought by the Bank of Italy, an increase of the number of electronic transaction by 10% for at least 4 consecutive years will reduce the underground economy by 5%.

To give some more concrete perspective, it needs to be said that the shadow economy in Italy accounts for the 21% of the GDP, the only one of the “Big-5” in Europe higher than 19%.

Just like it has been stated before, taking Italy to the European average for e-payments could mean recover almost 70 billion and thus reduce the missing VAT (IVA) revenues.

Figure 1



Source: European House Ambrosetti, Annual Report 2016

Figure 1 shows the VAT gap for 25 European countries. Of these countries Italy is at the first place.

Increase of the consuming cycle

Cashless payments have an important role when it comes to stimulate the economic activity. Use of more efficient systems foster both consumption and commerce. Analyzing the trend, it is found to exist a positive correlation between the value of money exchange by electronic cards and the performance of private consumption.

On data analyzed by the European Central Bank, if the number of card's payments would increase by 1 million, then, the level of the Italian GDP would increase by 0,07% (6 million euro).

Security of transactions

Even though we have already tackled the concept of security in chapter 1, the relation made by the European House Ambrosetti disclose some more specific details on Italian data about security.

For example, only in the years 2013-2014 there has been more than 1500 bank robberies and in 2014 the Guardia di Finanza confiscated 350 million euro of fake notes.

More researches have shown that again there is a positive correlation between the number of crimes pro-capite and the cash registered by the public administration.

Stimulation of consumption

The development of online payment allows the stimulation of innovation and digital economy. The actors taking part to the all systems are several and these come from the banking sector, physical and digital infrastructure and fintech start-ups.

These interconnections allow the creation of innovations and technologies such as the Cloud, Blockchain and business models like Big Data Analytics and clientele segmentation.

The multiples technologies developed the last year on security (geolocation, biometric systems and cloud-computing, etc.), intuitiveness (Telepass, P2P payment, etc.) and financial consciousness (

App for the management of personal savings) hint the potential of these innovative payment systems.

CHAPTER 3

ZERO LOWER BOUND AND NEGATIVE RATES

3.1 The Zero Lower Bound

Talking about Italy as a cashless society, gives the opportunity to explore the concept of negative interest rates and explain why the two concepts often go together. In balancing costs and benefits that becoming cashless would entail, the possibility of setting negative rates goes to the benefits side and in this chapter, it is discussed in detail the economic reason behind this statement.

The housing crisis of 2008 had tremendous effects on the economy and after more than 70 years, the rates were close to zero, floating between -1% and +1%.

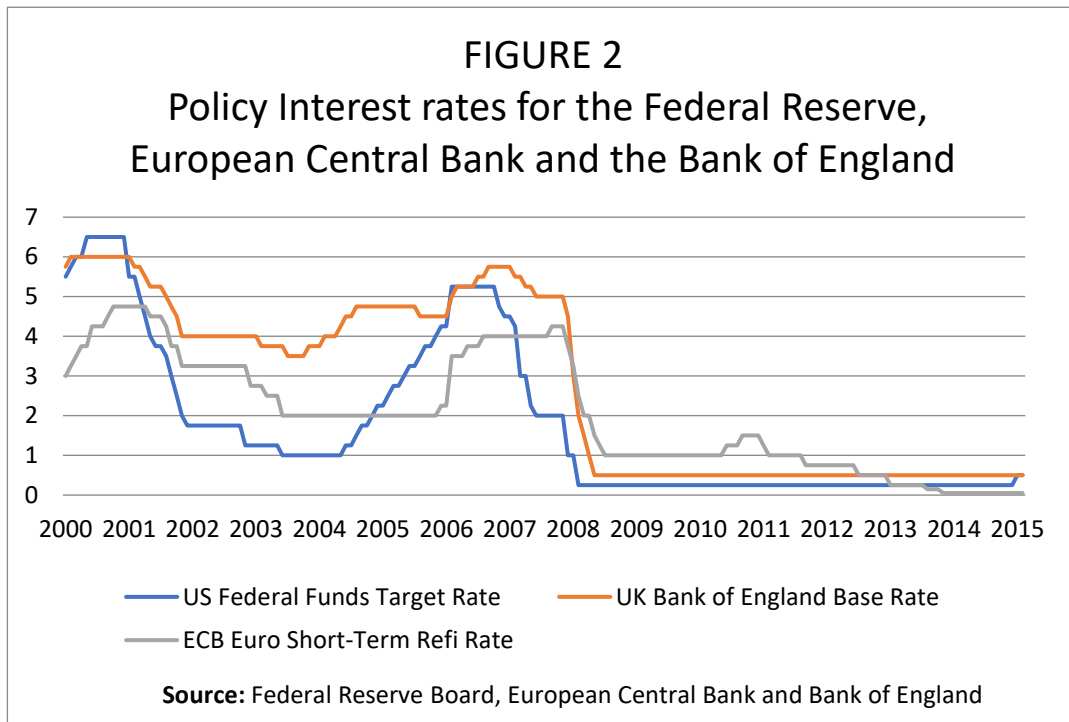
In boom periods, the economy could overheat, and inflation might rise to dangerous levels, so the central bank in contrast raise the official policy rate to a level considered to be optimal in that specific situation; in adverse situation instead, such as the tech bubble of 2001 or the 2008 crisis, when deflation threatens, the official policy rate cannot be cut below zero⁵⁰.

When we refer to rates, these coincide to the official policy rates of the various central banks. In the US for instance, this is the Federal Fund target rate which is not directly charged but works as a guide for the overnight rate. In UK and in the Euro Area, this is a repo rate, meaning the rate at which the ECB or the Bank of England is willing to lend for a predefined maturity to commercial banks⁵¹.

Figure 2 shows the movement of the official rates relating to UK, US and Europe starting from 2000. After the 2008 crisis the rates have sharply decreased until reaching the Zero Bound.

⁵⁰ Willem H. Buiter, (2009)

⁵¹ Ibid.



Once the Zero Lower Bound is reached, economy is said to have reached the liquidity trap, in other words monetary policy cannot stimulate aggregate demand through any channel⁵². That’s why Fed and ECB started using the so-called unconventional policies such as Quantitative Easing and Forward Guidance.

Quantitative Easing target is to lower short-term interest rates and increase the money supply, by buying government bonds or other securities on the market⁵³. It may be logical to ask why this massive money printing did not cause the inflation to rise at all. By considering the relation between monetary base and aggregates, it is known that any increase in Base Money leads an increase in Money Supply. However, if the increase in the balance sheet just stays within the banking system,

⁵² Willem H. Buiter and Nikolaos Panigirtzoglou, (2003)

⁵³ Investopedia, Quantitative Easing

money never flows in the broad economy and channel by which monetary expansion puts upward pressure on price is shut down.

Central Banks believe that there is a connection between QE and recession fighting, but they don't really know how much it really helped considering that data about interest rate in a period with declining rates is not helpful at all. Said that, QE is a policy to be used during recession and it should not be employed in normal times⁵⁴. Since 2008's interest rates fall, nobody thought they would be stacked at the Zero Lower Bound for so long.

3.2 Negative Interest Rates

Raising rates has been difficult for central bankers and talking about a cashless economy gives the opportunity to talk about another kind of unconventional policy, unconventional because it was never used before, but it is based on something far from innovative. This policy consists in setting nominal Negative Interest rates. It needs to be said that negative interest rates are possible even in a cash society, while it is considered to be slightly less effective because of the circulation of cash.

Negative rates policy works just like cuts work when rates are positive. The idea is that cutting rates from -1% to -1.5% has the same effect of going from 1.5 to 1⁵⁵.

Japan which is the pioneer of Quantitative easing, has been over time careful in setting negative interest rates that it never went below -0.1%⁵⁶. The reason why negative interest rates seem so unnatural is that people may decide to withdraw all the cash from current accounts by making banks insolvent. In fact, if money is thought as to be a bond with a 0 percent interest, any rational profit-maximizing person would have the incentive of keeping all his cash out of banks. By not having cash around, it is impossible for banks to be bankrupt and it would give institution a perfect control

⁵⁴ Rogoff, (2016)

⁵⁵ Ibid.

⁵⁶ Ibid.

on monetary variables. Laurence Meyer, a Fed board member back in 2009, suggested, according to his calculations based on variation of the Taylor rule that the official policy rate in the US should have been gone as low as -7,5%⁵⁷.

In a negative interest rates environment, investment and consumption will rise, given a lower cost of borrowing. Lower rates push price of assets like house and stocks up, making people feeling more confident about spending through the asset channel. Lower interest rates lower the exchange rate, causing depreciation⁵⁸. International economics insights tell us that depreciation leads to a higher consumption of home-produced goods with respect to imported goods and a higher export given that now goods produced at home are cheaper than before⁵⁹. Higher demand will eventually drive up wage and price inflation.

As said, negative interest rates could also be paid on currency. Numerous were the experiments since the 1930s to put stamp scrip on cash⁶⁰. This stamp required people to put new stamp on the back on the banknotes to keep them valid⁶¹. Another proposal for the taxation of currency was described by Mankiw (2009), who attributed this proposition to one of his students. The former consists in eliminating a part of the circulating currency through a lottery. In fact, any banknote is equipped with a serial number ending with an integer going from 0 to 9. If, for example from the lottery, the chosen number is 6, then, all the banknotes with serial number ending with 6 would stop being a legal tender. The nominal interest rate charged in this case would be of -10% which is also the ratio of banknotes becoming worthless. On the other side, since fiat money takes the value of what people think it has⁶², it might still be possible to use the banknotes ending with 6 if other agents are willing to accept them. It seems clear that also in the Mankiw proposal, some type of

⁵⁷ Willem H. Buiter, (2009)

⁵⁸ Rogoff, (2016)

⁵⁹ P.Krugman et al., International Economics 10th Edition, 2015

⁶⁰ Willem H. Buiter, (2009)

⁶¹ Rogoff, (2016)

⁶² Willem H. Buiter, (2009)

monitoring is needed (i.e. confiscation plus fine), moreover people would have the incentive to change all the banknotes in coins since they do not have any serial number.

Italy as a perspective possible cashless country will have the opportunity to exploit the advantages of setting negative interest rates when the occasion requires it. Because of the effectiveness of this simple, but efficient policy, it seems clear that the Italian government should take into account all the benefits that setting negative interest rate in a cashless society brings to the overall economy.

CHAPTER 4

4.1 THE NORDIC EXAMPLE: SWEDEN AND DENMARK

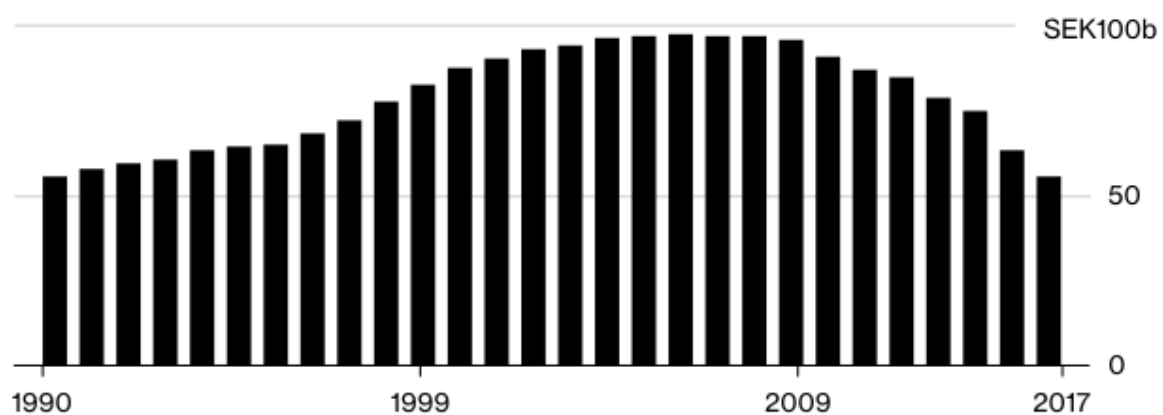
Sweden's objective is to become cashless in few years. Together with Denmark, it is in the first place when it comes to innovation and progress with electronic payments; in fact, for payment between 100-500 SEK and above 500 SEK, the ones settled in cash are only respectively 9% and 4%. Shops start showing signs in which it is explicitly state that, that commercial activity would not accept banknotes or coins as a medium of exchange.

Figure 3

Disappearing Cash

Amount of Swedish notes and coins in circulation has dropped to lowest level since 1990

■ Value of cash in circulation



Source: Statistics Sweden

From Figure 3, it is straightforward to see the downward trend of Swedish Krona circulation and in 2017 the cash circulating was estimated to be on the lowest since 1990⁶³. Nevertheless, what Sweden is experiencing is almost unique in the world. In fact, it results to have the lowest cash in

⁶³ Statistics Sweden

circulation to GDP ratio in the world, with upward trend in many countries in the world, Italy included⁶⁴. Figure 5 shows the actual data for Sweden which is at the first place and other important economies in the world.

Figure 5



The Bank for International Settlement has stated that since the fall in interest rates, people tend to keep banknotes, especially large-denomination one as store of value, given the lower opportunity cost of holding cash⁶⁵. However, Sweden shows a fall in demand for all notes.

Through the years, Sweden has shown an increasing trust in technology and in cashless payments. After a long series of heists during the decade, people questioned whether it was worth to keep using cash⁶⁶. The fact that cashless payments are so rooted in the culture, but also in the legal system, it is witnessed by the fact that the national commercial law allows shops to overrule the law

⁶⁴ Bank of International Settlements

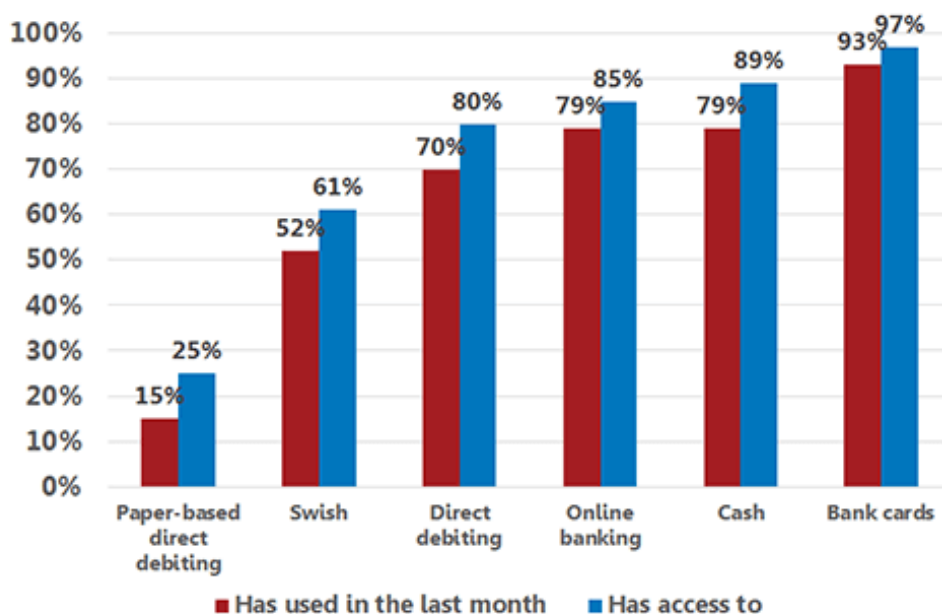
⁶⁵ Bloomberg, (2018)

⁶⁶ Quartz, (2018)

of accepting cash as a legal tender. When a customer enters the shop, he has in fact, entered into a legal agreement in which he accept to use cashless payments⁶⁷.

In 2012, seven large Swedish banks launched an innovative P2P service, called Swish. It basically connects a bank account to the app on your smartphone and allows instantaneous free of charge exchange of money between private citizens or between those and commercial activities, if they support the service. Swish was created with the idea of exchanges between 2 or more individual, but then, it quickly diffused for church donation and other small events where the usual credit card method was too expensive⁶⁸. Now, Swish is used for most of those transactions that previously used to be cleared with cash. The app has in 2017 reached 5 million users and already in 2015, 52% of the Swedish had been using the app at least once in a month⁶⁹(see Figure 6).

Figure 6



Source: Sveriges Riksbank

⁶⁷ Quartz, (2018)

⁶⁸ Swish (payment), Wikipedia

⁶⁹ Medium, (2017)

From 2012 to 2017, the app had exchanged among its users more than \$890 million⁷⁰.

The mobile payment service offered by Swish, it is not something new to the market. Companies like PayPal, Venmo, WeChat offered similar service, but none of them has been so intuitive and smooth like Swish for Swedish consumers.

In 2016, Poste Italiane, launched within its smartphone app a new service allowing for P2P payments. The service, which, furthermore permits to connect the app with the telephone number, was conceived for small money exchange up to 25 euro between individuals, with a 1 euro fee for payments above 25 euro⁷¹. Although the app has already been downloaded by 3.2 million users⁷², the service seems to be of limited use and diffusion, even if recent data about cash exchange on the platform is not available.

In Sweden, the discussion about an incumbent cashless society, brought politicians and economists to look not only at the benefits, but also at the risk that in their opinion turning to cashless entails. The governor of the Riksbank, Stefan Ingves, concerned that the all Swedish payment system would be controlled by few private banks, remembered that making and receiving payment should be a public good just like defense, courts and public data⁷³. He, then, warned about the effectiveness of a Swedish reaction to a serious crisis or even a war; in fact, in those cases, people need cash for primary necessities⁷⁴.

Another issue, it is raised by technological security. What does it happen if something or someone is able to shut down the system? “No system based on a technology is invulnerable to glitches” states Mattias Skarec, a digital security consultant⁷⁵, so at the same time, it is foolish to believe that cash could be completely eliminated, at least in this historical moment.

⁷⁰ www.Swish.se

⁷¹ www.PosteItaliane.it

⁷² Corcom, (2016)

⁷³ The Guardian, (2018)

⁷⁴ Ibid.

⁷⁵ Ibid.

Finally, the older part of the Swedish population seems to be bothered by the recent inconvenience of being unable to use cash in several shops. They believe that as long as cash is a form of legal tender, it should be accepted as an alternative to electronic payments, at the same time, they are not against innovation and cashless payments⁷⁶. For who does not own any mobile device or computer, this cashless trend makes life more expensive⁷⁷. In fact, most banks stopped accepting cheques and raised fees for bank transaction made in cash⁷⁸.

As explained, the situation in Sweden is unique, but other countries are trying to catch up.

Denmark, together with Norway is one of the country with lower circulation of cash and so the cashless argument has been discussed recently⁷⁹. The government is considering just like Sweden to allow commercial activities to be able to refuse cash payment⁸⁰, at least during the evening when robberies are more frequent.

Differently from Sweden, however it seems that Denmark will keep cash in circulation. It is what has been concluded by the Danish Central Bank in a survey on the payment behavior of households in Denmark. In fact, 23% of point-of-sale transactions is settled in cash, with respect to a European average of 79%⁸¹. Cash is still widely used for low-value payments and for savings purposes whose average (EUR 1343) is surprisingly higher than the European one⁸².

The Danish Central Bank concluded the report on the survey by stating that it is expected to see a further reduction in the circulation of cash in Denmark, while it would be false to claim that the country is heading towards becoming a cashless society⁸³.

⁷⁶ BBC, (2018)

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ This conclusion taken from analysis on currency to GDP ratio. (Source: https://scholar.harvard.edu/rogooff/curse_of_cash_data)

⁸⁰ Verdict, (2018)

⁸¹ CashEssential, (2018)

⁸² Ibid.

⁸³ Ibid.

CHAPTER 5

THE ANALYTICAL ANALYSIS IN SUPPORT OF THE THESIS

5.1 Introduction

Given the impossibility to replicate the following model, the latter has been employed in this section to analyze the effect of some economic variables on the circulation of cash and indirectly be a proof of the benefits that reducing or eliminating cash as on the overall economy.

This section takes its information and conclusion by an econometric study conducted by the Bank of Italy in the April 2012 called “Measuring the underground economy with the currency demand approach: a reinterpretation of the methodology, with an application to Italy” by Ardizzi et al.

5.2 Currency Demand Approach

The Cash Demand Approach is one of the most used indirect method to estimate the size of the underground economy and it works in 2 stages:

- 1) The econometric estimation of an aggregate demand function with components relating to the underground economy
- 2) The computation of the value of these shadow transactions via the quantity theory of money

The assumption of the first estimation is that underground economy uses cash to avoid tax burden and for illegal purposes, so as regressors variables stating the preference for liquidity are used such as interest rate on deposits and level of tax burden

The demand for cash related to the shadow economy is then computed as the difference estimated demand for cash. In the full model, the demand is obtained by setting to zero all the regressors related to the underground economy which is the demand from cash motivated only by regular transaction.

However, since it came out in 1958 and then, reviewed by Tanzi in 1980, the CDA has encountered some criticisms mainly coming from its assumptions. These are:

- 1) CDA assumes that at a chosen base year there is no underground economy
- 2) CDA assumes an equal money velocity in both normal and underground economy
- 3) CDA doesn't include any other underground determinants than tax burden

5.3 A reinterpretation of the Cash Demand Approach

The working paper of Ardizzi proposes to revise the CDA by taking to consideration all three criticisms:

- 1) The dependent variable will not be the ratio of cash to money supply, but in this case, it will be the ratio between cash withdrawn from current accounts (bank and postal) and total non-cash payments
- 2) In Ardizzi's paper, it is used Tax audit instead of tax burden for a more precise estimate
- 3) Include as an independent variable another aspect of the underground economy which relates more directly with share of total crimes coming from prostitution and drug dealing

This modified approach of the CDA is applied to Italy.

By modifying the approach, the new model overcomes to some major issues that would give wrong or poor results, proven that the regressors used are either unrealistic or not sufficient.

Modifying the first assumption (the absence of any transactions in the underground economy in the base year), Ardizzi is able to dispense the need for the quantity theory of money⁸⁴ and the Fisher equation⁸⁵ and doing so the model has no need of a base year where underground economy is null or the need of assuming velocity equality among different economies.

In order to reply to critique 2, Ardizzi uses a direct measure such as tax audits rather than tax evasion on which the Tanzi's model was heavily dependent.

Finally, with reference to criticism 3, it is concluded that the shadow economy is not the only main player when it comes to cash-based transactions. In fact, Ardizzi includes in his model all those activities relating to illegal production that he finds to be represented by transaction coming from drug dealing and prostitution.

5.4 Application of the Modified CDA

The CASH variable

In this sub-section it is discussed in detail the reason that brought the author of the paper to choose a modified dependent variable in the model with respect to the Tanzi's one.

Just to give a more complete view of what it is going to be dealt, below it is presented the entire equation and in the next session, starting from *CASH*, all the variables will be discussed in detail.

⁸⁴ The Quantity Theory of Money states that there is a direct relationship between the quantity of money in the economy and the level of prices of goods and services sold. In the quantity of money in the economy doubles, the price level doubles as well, leading to inflation. (Source: Investopedia)

⁸⁵ The Fischer equation expresses the relation between nominal and real interest rate under inflation. (Source: Wikipedia)

$$CASH = \alpha_1 YPC + \alpha_2 BANK + \alpha_3 ELECTR + \alpha_4 INT + \alpha_5 EVAS1 + \alpha_6 EVAS2 + \alpha_7 CRIME + \varepsilon$$

The dependent variable in the estimated equation of the demand for cash payments (*CASH*) is the ratio of the value of cash withdrawn from current accounts to the value of total payments settled by instruments other than cash. This represents a measure of the demand for untraced payments per Euro of traceable payments.

This variable represents demand for cash exploiting the concept of flow of cash rather than stock of liquid assets. In fact, even with reliable sources, stock indicators might be strongly inaccurate for three reasons: a) quantifying the value of national currency used outside national borders is quite complicated and this is especially true after the introduction of euro; b) amounts of cash can be held for purpose different than transactions; c) assumption of constant velocity of money with respect to several GDP components.

For instance, an increase in a monetary aggregate such as M1 is a signal of greater liquidity preference, but at the same time does not give any information about the motives that brought to such an increase, moreover the European Central Bank estimated that more than the 20% of all Euro banknotes are held outside the European borders.

This is to prove the difficulty in estimating the component of cash held to settle payments within the underground economy from data on stocks and the need to choose indicators more directly related to transactions. Moreover, since 2002 the currency-to-GDP and the currency-to-M1 ratios show divergent patterns, meaning that the downward trend of flow (currency-to-GDP) is consistent with the gradual shift to electronic payment in commercial transactions, this fact allows some substitution.

The broad indicator of cash that it is going to be used “Total cash withdrawals value flows to total non-cash payments” (*CASH*) other than taking into account a wider spectrum of economic agents, it is found to be more efficient since it is closer to the “point of sale” and shows better correlation and significance.

The regressors of CASH

The determinants of cash demand are divided into three groups: structural, underground and illegal (crime).

1) *The structural components of CASH*

Based on the literature of Goodkhart and Krueger, 2001, it is possible to identify four conventional determinants of the structural demand for cash payments:

- 1) The level of economic development described by GDP per capita at the national level (*YPC*)
- 2) The degree of spatial diffusion of banking (number of current account per capita (*BANK*))
- 3) The payment technology, with special reference to e-payments, so in this analysis it is described by the value of transactions settled by electronic payments in proportion to provincial GDP (*ELECTRO*)
- 4) The fourth determinant is interest rate. By macroeconomic theory it is known that a higher interest rate has a negative effect on demand for money and also raises the opportunity cost of holding cash⁸⁶, so it is expected to have a coefficient of negative sign, however since the dependent variable in this model is based on flow rather than stock, a higher interest rate

⁸⁶ O. Blanchard et al., Macroeconomics: a European perspective, 2010

may even have a positive effect for example, by fostering the raise of cash outside the banking channel. That's why the effect is considered to be ambiguous.

1) The underground components

For the underground component, the authors considered more appropriate to employ two different regressors. These are called *EVAS1* and *EVAS2*. The former expresses the number of targeted tax audits in a province divided by its sample mean value (weighted by a GDP concentration index). Applying a weighted average allows to differentiate the provinces with different level of economic development and so consequently avoid to attach a higher level of tax evasion for those provinces presenting higher economic activities; the latter stands for the ratio of the number of positive audits on cash registers and tax receipts to the number of POS terminals in the province (weighted by a GDP concentration index), this makes sure to avoid irregularities in the inspection on retailers of the finance police. Ardizzi et al. expect these 2 regressors to provide a complete analysis on the underground components of the demand for cash.

2) The illegal component

Another characteristic that distinguish this model from the classic CDA, is the use of an index of crime rate, in order to divide the illegal from the shadow activity. The independent variable *CRIME* describes the share of crime violating laws on drugs and prostitution in total reported crimes. This variable has been weighted for a GDP concentration index for the same reason of the underground components. The analysis voluntarily excludes all those transaction in which the exchange of cash is not given by an agreement, such as robberies, in fact, including thefts would have a negative impact on the dependent variable cash since where thefts are more common, people logically tend to have amount of cash.

5.5 Estimating the demand for cash payments

$$CASH = \alpha_1 YPC + \alpha_2 BANK + \alpha_3 ELECTRO + \alpha_4 INT + \alpha_5 EVAS1 + \alpha_6 EVAS2 + \alpha_7 CRIME + \varepsilon$$

To this equation, which is the final one, has been applied the acquired data on 91 different Italian provinces.

To calculate the total excess of unobserved transaction, which is the shadow plus the illegal activity, the authors apply the Tanzi method which consists in subtracting the fitted values of cash in the complete model (the equation expressed above) and the predicted values of *CASH* obtained by setting $EVAS1=EVAS2=CRIME=0$. In order to get the single value from respectively shadow and illegal activities, it is sufficient to subtract the values from the complete model and those of the restricted model by setting $EVAS1=EVAS2=0$ in the first case and $CRIME=0$ in the second one.

Ardizzi by running the regression with or without the variable *CRIME*, shows the importance of controlling for illegal activities, since it results a better model's fit and a lower coefficient on *EVAS2*, and thus, a lower total impact of tax evasion on the demand for cash. In other words, ignoring *CRIME* may lead to two possible errors: one is to confuse tax evasion with illegal economic activity and the other is to underestimate the size of the unobserved economy.

5.6 Reading the effects on CASH

$$\begin{aligned} CASH = & -0,026 YPC - 0,061 BANK - 0,005 ELECTRO - 0,010 INT \\ & + 0,006 EVAS1 + 0,010 EVAS2 + 0,286 CRIME + 0,222 \end{aligned}$$

The coefficients of the model, express exactly what it is logically to expect on the effect of the regressors. Provincial GDP per capita (YPC) has a negative effect on CASH since we expect a larger use of cashless payment from a population with a higher GDP, ceteris paribus. BANK and ELECTRO which are the variables which more directly relates to cashless transaction confirm to have a negative effect on CASH. The model states that if the number of current account per capita goes up by 1, the value of cash withdrawn from current accounts to the value of total payment settled by instruments other than cash (CASH) goes down by 6,1%, ceteris paribus. ELECTRO instead has a lower effect on CASH (0,5%) but still not neglectable. Both EVAS1, EVAS2 and CRIME have a positive effect on CASH, as expected. The high effect of CRIME on CASH, suggest how eventually legalizing and regulating both the retail of marijuana and prostitution may have a huge effect on unobserved economy. EVAS1 and EVAS2 shows respectively a 0,6% and 1% effect if each goes up by 1 unit, ceteris paribus.

5.7 Conclusions on the model

Clearly, the model constructed by Ardizzi et al. brings new and fundamental innovation in the measurement of underground activity. Firstly, by using a direct measure of the value of cash transaction, the regression can be run without the assumption of a base year in which the underground production is zero and of the Fisher equation. Secondly, implementing the model with

a measure of illegal activity result to be consistent, since it account for a significant proportion of cash payments in the economy.

The data used for this model has been got by measurement on 91 different Italian provinces in the year 2005-2008. By the ultimate results, the average shadow economy is estimated to be 16,5% of the GDP, a result which is consistent with the official report (Istat). The difference can be attributed to the omission of illegal activities in the classical Cash Demand Approach.

5.8 Appendix

In this table, there is a comprehensive description of the regressors and variables used in Chapter 5, so as the sources used to find the data for the analysis.

Variable	Definition	Source
<i>CASH</i>	Ratio of the value of cash withdrawn from current (bank and postal) accounts to the value of total payments settled by instruments other than cash	BI
<i>Structural factors</i>		
<i>YPC</i>	Provincial GDP per capita	Eurostat
<i>BANK</i>	Per capita number of current accounts	BI
<i>ELECTRO</i>	Ratio of the value of transactions settled by electronic payments to GDP	BI and Eurostat
<i>INT</i>	Rate of interest on current deposits	BI
<i>Tax evasion</i>		
<i>EVAS1</i>	Number of targeted tax audits in a province divided by its sample mean value (weighted by a GDP concentration index)	GdF and Eurostat
<i>EVAS2</i>	Ratio of the number of positive audits on cash registers and tax receipts to the number of POS terminals in the province (weighted by a GDP concentration index)	GdF and Eurostat
<i>Criminal economy</i>		
<i>CRIME</i>	Share of crimes violating laws on drugs and prostitution in total reported crimes (weighted by a GDP concentration index)	Istat and Eurostat

CHAPTER 6

Conclusion

Phasing out cash is not straightforward. Government brings on high return businesses when it comes to seignorage, and people for different reasons such as savings or adaptation issues are reluctant to abandon cash options. At the same time, the data when cash use is reduced is really persuasive to push in the cashless direction. Robberies and ATM thefts would be reduced a great deal and the economy as an all benefits from a higher amount of cashless transaction by avoiding those social cost like transportation and safeguarding costs that cash, especially huge sums imply . If the premise is that banknotes and coins, in the modern economy relates to a little percentage of the total and are furthermore not considered when it comes to monetary policy decisions, then it seems only a matter of time.

That part of the population which in the modern days is raising the greater issues because of the digital illiteracy, will eventually adequate and the underground economy will follow, however not without important organizational problem brought by having to find another medium of exchange. Privacy will be the primary challenge to solve for governments, however it is difficult to imagine greater problems to overcome than they are today. It is also to be remember that a higher control would facilitate security when it comes to crimes in which operation are inevitably settled online. Clearly, just like Sweden and Denmark showed, the cashless society is the right direction and it is not far from achievement. Italy, by heading towards it, can give a stimulus to the economy and finally align to the other European countries that are benefiting from cashless transactions.

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