CHAPTER 1

South African economic history and poverty

1.1. Background

The Republic of South Africa is a country located at the southern tip of Africa. It covers a surface area of 1,221,037 km and is divided into nine provinces. South Africa is a multi-ethnic country with diverse cultures and languages. Eleven official languages are recognised in the Constitution of the Republic of South Africa and several distinct tribes reside in the country. Though English is commonly used in public and commercial life, it is only the fifth most-spoken home language. All ethnic and language groups have political representation in the country's constitutional democracy comprising a parliamentary republic. Approximately 79.5 percent of the South African population is of black African ancestry divided among a variety of ethnic groups speaking different Bantu languages, nine of which have official status. South Africa also contains the largest communities of European, Asian and ethnically mixed ancestry in Africa. The World Bank ranks South Africa as an upper-middle income economy. It has the largest economy in Africa and the 28th-largest in the world.

Prior to 1990 South Africa was largely a pariah state in the world due to the policy of racial segregation known as Apartheid. Apartheid was a system of minority rule in which the majority was denied political rights. Severe legal restrictions prevented the majority from enjoying the amenities and privileges available to the minority. Apartheid became increasingly controversial and some Western nations and institutions began to boycott doing business with South

Africa because of its racial policies and oppression of civil rights. International sanctions, divestment of holdings by investors accompanied growing unrest and oppression within South Africa. The government harshly oppressed resistance movements and violence became widespread. Anti-apartheid activists used a variety of peaceful and violent means to force the government to abolish Apartheid and implement majority rule. The African National Congress (ANC) was a major resistance movement. In 1990 the National Party government took the first step towards dismantling discrimination when it lifted the ban on the ANC and other political organisations. It released Nelson Mandela from prison after twenty-seven years' serving a sentence for sabotage. A negotiation process followed.

Apartheid in South Africa officially came to an end with the democratically held elections in 1994, leaving in its wake a population with vast inequalities across racial groups. At least 68 percent of the African in 1995 population were living in poverty, while poverty was virtually non-existent for whites. The Gini coefficient of expenditures was 0.56 (Ngwane et.al, 2001), making South Africa one of the most unequal countries in the world at that time. The country also inherited vast inequalities in education, healthcare and basic infrastructure such as access to running water (Ozler, 2007). Income disparities between blacks and whites were severe. In 1995 the black share of income was 38.7 percent, in spite of making up 75 percent of the population and the whites share was 49.9 percent despite making up less than 15 percent of the population (Ngwane et.al, 2001). Following the democratic elections in 1994 the new government was under significant pressure to address the high levels of poverty in South Africa and to reduce the income gap between whites and blacks.

1.2. The current South African economic context

The decade after 1994 saw an improved growth performance in South Africa, particularly when compared to the preceding ten years. The improvement, however, was modest both by international standards and the standard of South Africa's own history. The average real Gross Domestic Product (GDP) growth rate for the decade 1995 – 2004 was 3.0 percent and in per capita terms 1.0 percent (Du Plessis and Smit, 2005). The growth rate fell short of that anticipated for the economy after the political transition. The growth rate did not attain that required to advance employment and development for the entire South African population. Ultimately the peaceful transition in South Africa, while a great accomplishment for its people, was not accompanied by growth and a meaningful improvement in life for average South Africans (Motloung and Mears, 2002). Notwithstanding low growth rates the South African government did achieve noteworthy improvements in the plight of South Africans.

South Africa has achieved considerable success in terms of improvements to household access to most services. In excess of 15 million previously un-serviced people have been connected to a formal water supply since 1994. Progress has also been made with the provision of sanitation, with the proportion of householdswith adequate services improving from 50 percent in 1994 to 71 percent in 2006 (May, 2010).Survey data showed improvements in housing, access to water, access to electricity and toilets between 1993 and 2004. Access to electricity for lighting increasing from 52 percent of households to 80 percentwhile access to piped water increased from 59 percent to 68 percentof households.Poverty levels in South Africa have not shown the same level of improvement. Approximately 58 percent of South Africa's population was

categorised as being poor in 1995, a situation that had not changed by 2000, although there was a marginal decline on the poverty incidence of Africans, from68 percent in 1995 to 67 percent (Ozler 2007).

Poverty alleviation has been one of the major policy objectives of the government. In order to alleviate the high levels of poverty, the government introduced and then greatly expanded a program of social welfare grants. Social welfare grants are paid to a range of beneficiaries such as pensioners, disabled people, war veterans and women with young children. Grants are paid to recipients who do not have another source of income. Social grants are now the most significant source of income for poor people (Finscope, 2011). In 2010 over 10 million citizens received a government social grant in one form or another. The National Treasury expects the number of grant recipients to increase to 16.5 million by the end of 2013. This expansion risks placing a severe drain on the treasury and informs the need to find alternative and complimentaryapproaches to poverty alleviation.

1.3. Definition of financial services

Financial services are the economic services provided by the finance industry. Providers encompass a broad range of organisations that manage money and include credit unions, banks, credit card companies, insurance companies, consumer finance companies, stock brokerages, investment funds and some government sponsored enterprises. Within South Africa providers of financial services are split into two categories, banking financial services and non-banking financial services. Banking financial services are regulated by the registrar of banks and are occupied with the provision of banking services. Non-banking

financial services are regulated by the Financial Services Board (FSB) and cover other providers of financial services such as insurance and brokerage services. Banking financial services, the area of interest for this study, relates to the provision of financial services through a bank and involves the management of a banking account for customers to make deposits, save money, pay liabilities and obtain credit.

Historically banking has been provided through a banking branch infrastructure. This required customers to enter a branch to conduct transactional activities such as making a deposit, withdrawing money or applying for credit. Computer based technology has, over the past few decades, enabled customers to conduct banking increasingly without the need to enter a traditional branch. The introduction of automated teller machine's (ATMs) in the 1960's allowed customers to withdraw money from their accounts without entering a banking branch. Today, using an ATM, customers can make cash withdrawals, obtain debit card cash advances and check their account balances. ATMs often provide additional functionality such as the purchase of prepaid cell phone airtime. Similarly the introduction of Internet banking, cell phone banking and Point of Sale (POS) devices have allowed customers to conduct banking through the use of computer enabled technology without the need to enter a branch. The adoption of this type of technology by customers has allowed banks to increase both the availability and accessibility of banking.

1.4. Financial exclusion

The term financial exclusion was first used in 1993 by geographers who were concerned about limited physical access to banking services as a result of bank

branch closures in the United Kingdom (Leyshon and Thrift, 1995). The authors expressed concern that the closure of banking branches resulted in people and certain groups not being able to access financial services infrastructure. In the absence of alternative providers, these individuals and groups risked becoming excluded from the formal financial services system within the United Kingdom. Within the literature there are now various definitions for financial exclusion. Carbo et.al. (2005) defined financial exclusion as the inability of some societal groups to access the formal financial system. According to Conroy (2005) financial exclusion is a process that prevents poor and disadvantaged social groups from gaining access to the formal financial systems of their countries. Mohan (2006) holds that financial exclusion signifies the lack of access by certain segments of the society to appropriate, low-cost, fair and safe financial products and services from mainstream providers. The majority of the financially excluded people are low-income individuals (Centre for financial inclusion, 2009).

Financial exclusion may precipitate wider social exclusion as a lack of financial services may compromise access to jobs, housing, education and health care. The most basic form of formal financial inclusion is access to a bank account and consequently people who do not have a basic bank account are financially excluded. A bank account provides the key to accessing other financial products such as savings and credit. Being financially excluded means households and micro and small enterprises deal entirely in cash and are susceptible to irregular cash flows. Lack of financial planning and security in the absence of access to bank accounts limit their options for providing for themselves for their old age, increases the risk of loss through theft and leaves people at the mercy of predatory practices from unregulated credit providers (Mohan, 2006). Survey

evidence suggested that one of the main reasons poor people did not use bank accounts were that withdrawal fees were prohibitively expensive (Dupas et.al, 2012). Costs are negatively correlated with banking penetration and banking accessibility may prevent a large percentage of poor people from using banking services (Beck et.al, 2007).

1.5. Financial inclusion and poverty alleviation

Evidence indicates that expanding access to financial services to the poor is an effective tool in poverty alleviation. A study in Ethiopia based on household surveys from 1994 to 2000 demonstrated that access to financial services caused a statistically significant reduction in five of seventeen determinants of poverty (Demi-Kunt, 2007). A similar multi-country study demonstrated how access to financial services encouraged social mobility across generations, thereby leading to poverty reduction in the long run (Beck et.al, 2007). In cross-country regressions Beck et.al (2004) investigated how financial development influenced the growth rate of the Gini coefficient of income inequality, the growth rate of the income of the poorest quintile of society and the fraction of the population living in poverty. The results indicate that access to formal financial services inclusion exerts a disproportionately large, positive impact on the poor and hence reduces income inequality.

Access to formal finance servicesby the poor is often hindered by a lack of relevant information and service infrastructure. Because of their economic situation typical financial transaction sizes may be small. Incomes for the poor may also be irregular and transaction flow through bank accounts may either be irregular or consist of numerous small value transactions. It may beexpensive for

financial service providers to pay out and collect small amounts of cash from large numbers of poor people using a typical branch infrastructure. These types of transactions may furthermore not give poor people the kind of recorded financial history that providers can use to evaluate their credit worthiness. The absence of such physical and informational infrastructure makes it unattractive for financial service providers to offer products designed specifically for the needs of the poor, including appropriate transaction sizes and charging models.

Over the last five years, there has been a growing interest among policymakers, development organisations and practitioners in developing countries in solving the infrastructure gaps that hold back access to finance. Much of their attention has been focused on developing a general payments infrastructure that allows people and businesses to deposit and withdraw funds and make electronic payments in a manner that eliminates the need for bank branches (Dermish et.al, 2011). Expanding financial inclusion is thus defined as the delivery of banking services at an affordable cost to the sections of disadvantaged and low-income groups.

1.6. The South African banking sector

For a developing country, South Africa has an exceptionally sophisticated banking sector. The electronic banking technology, smart cards andPOS devices compete with the most advanced banking systems anywhere in the industrialized world. Effective banking supervision has resulted in a stable and competitive banking environment. In 2012 there were 31 registered banks in South Africa, 15 of which were local branches of foreign banks. The banking sector is, however, highly concentrated with the big four commercial banks (ABSA Bank, First

National Bank, Nedbank and Standard Bank) controlling over 80 percent of the retail banking market. This concentration compares poorly to the United Kingdom where the top three banks control 26.5 percent of the market and the United States where the top three banks control 10 percent of the market. At the end of 2010, South Africa had 2,740 bank branches, 21,000 ATMs and more than 109,000 POS devices (CGAP, 2010).

The number of retail bank accounts and customers for the big four commercial banks is estimated at 35 million. The very small retail client base of the other banks means that the 'big four' have cornered virtually all of the country's retail customers. South African banks also dominate the banking landscape in Africa. In Africa South African banks accounted for 40.4 percent of total banking assets, 34.6 percent of net earnings, 49.9 percent of bank credit and 42.4 percent of bank deposits. The banking sector has shown robust growth over the past decade. Total banking assets to GDP increased from 89.2 percent in 1999 to reach 138.6 percent in 2008, while private sector credit provided by the banking sector increased from 152 percent in 2000 to 198 percent in 2007 before falling to 172 percent in 2008, likely reflecting the impact of the global financial crisis (Mlambo, 2011).

This high level of concentration most likely reduces competition between banks and allows pricing power to move from the customer to the provider. Research on bank access in 2004 and 2005 for 58 developed and developing countries worldwide found that the fees to access and maintain certain banking services in South Africa were significantly higher than the median for the countries surveyed and more often than not, also higher than the average (Beck and de la

Torre, 2006). This view is also supported by a study that found service charges levied by the 'big four' banks in South Africa were higher than those of the top 100 banks in the world. The study further argued 'that despite the fact that these banks do not provide services to more than half of the adult population, they are more profitable than their counterparts in other developing countries' (Okeahalam, 2007). High levels of profitability may also reduce the incentive for banks to provide services to less profitable segments of the population, such as the poor.

In 2012 the South African financial sector remains relatively exclusive with regards to access and outreach. While access to financial services in South Africaremains a challenge, it is comparable to that of Brazil and India and superior to the rest of Africa. In terms of adults with access to loans and deposit accounts, nearly twice as many South Africans have access to finance compared to Botswana and Namibia. Also, more South Africans have access to ATMs than most of Africa. Notwithstandingthis about half of the adult population in South Africa, especially the poor, has no access to formal financialservices in South Africa (Mlambo, 2011). The most recent study into financial inclusion in South Africa found that 63 percent of the population were formally served while 27 percent were not served at all and 10 percent were informally served (Finscope, 2011).

The reason why access to financial services is a problem for many individuals throughout the world has received attention in academic research. Beck and De la Torre (2006) found that demand and supply factors limit access to deposit, payment and credit services for South Africa's poor. The supply constraints to

access were high costs involved in serving the poor, which included the operating cost per unit of transaction. This cost was high because the fixed costs needed to be recovered by a limited number of transactions small in size. In the case of loans, costs to lower the perceived high risk of loan default were high as the poor could oftennot provide banks with conventional forms of collateral (Schoombe, 2009). The demand determinants were those that affected the affordability of the service, the income level of the consumer and the cost of the service. The latter comprises of the direct costs, namely the price of the service and the indirect costs to access the service, namely transportation costs and the minimum balance required to open an account. Non-economic demand determinants such as financial illiteracy and ethnic or religious factors may also lead to self-exclusion by potential clients.

The supply of basic formal banking services to the poor is thus inhibited by the high costs involved for the suppliers, while the use of these services is limited by their affordability for the poor and their predisposition to self-exclusion (Schoombe, 2009). In South Africa, a low income has been found to be the most important disincentive to the use of financial services. Self-exclusion, often the result of financial illiteracy, has remained a serious constraint to the use of financial services locally. Overall, South African banks have not succeeded in lifting the supply constraints when serving the poor (Schoombe, 2009).

1.7. The role of technology in expanding financial inclusion

The potential role that technology can play in enabling financial inclusion is significant. Concentrating low-value transactions at a limited number of branches is very costly for banks and their customers alike. Banks have to invest

large fixed costs in setting up and maintaining their branch network and customers often expend significant time and money to travel to distant branches, especially in rural areas. As a result, banks often stay away from poor or rural communities, which they find too costly to serve and poor people fall back on local, informal options to manage their finances (Mas and Almazan, 2011). Poor people may require as many, if not more, financial transactions than average bank customers since their income is less predictable. Poor people are often paid more frequently (daily or weekly) and their daily financial circumstances may be more easily overwhelmed by health or other shocks.

However active cash flow management may not translate into long-term financial accumulation, given the pressing consumption and investment needs poor people face. Serving the poor presents two major challenges for retail banks: devising a viable revenue model that is consistent with customers' cash flow needs and perceptions of value andminimisingthe infrastructure and operational burden of handling large numbers of small transactions. Formal financial institutions can provide a range of financial services to the poor and support the drive for financial inclusion through the use of technology-based solutions. The effective use of technology can reduce the cost of operations. Through technology, banks have the potential to reach out to poor and unbanked people through the ATMs and POS networks (Natu, 2008).

A cost comparison of technology based solutions and traditional banking highlights significant cost benefits to banks. ATM transaction costs are as much as five times less expensive than those of a bank teller. Other technologies, particularly mobile phones, are now widely used among poor people across

Africa. Inexpensive POS devices that read debit and credit cards can now be used without constant telecommunications and electricity connections (Ivatury, 2007). "Branchless banking" is a term coined by the Consultative Group to Assist the Poor (CGAP) to refer to distribution channels that allow financial institutions and other commercial actors to offer financial services outside traditional bank premises (Lyman et al., 2006). Branchless banking allows customers to conduct basic financial transactions such as deposits and withdrawals at a variety of outlets using technology in the form of cards, mobile phones, POS devices and ATMs to properly secure and authorise the transactions. Access to transaction facilities is a major enabler for achieving universal access to finance. Once the capability to easily pay and receive money to and from anyone exists, the range of financial possibilities expands.

Branchless banking allows customers to access financial services beyond bank branches and thereby holds the promise of addressing two major hurdles to financial inclusion, the lack of accessibility and high costs. It builds on the sustained development of mobile telecommunications that makes it possible for the banking sector to embrace indirect distribution and for new financial services to reach otherwise unbanked customers. Banking beyond branches means having better access to electronic transactions and the access to formal financial services becomes more convenient (Alexandre, 2011). Using data from surveys with more than 16,000 users, McKay and Pickens (2010) reviewed the experience of 18 branchless banking deployments that were mostly but not exclusively mobile based, focusing on the number of customers served, service pricing and customer needs. They found that each service averaged 1.37 million active, previously unbanked users and that the majority had more active customers than the

largest comparable microfinance institution. Branchless banking was also cheaper than traditional banking channels with low-volume transactions priced 38 percent lower than those of comparable providers (McKay and Pickens, 2010)

1.8. The role of intermediaries in expanding financial inclusion

In a growing number of countries, banks and other commercial financial service providers are partnering with intermediaries to deliver financial services to unbanked people. Rather than using bank branches and their own field officers, they offer banking and payment services through postal and retail outlets. Grocery stores, pharmacies and petrol stations are examples of retail outlets through which financial services can be provided. For poor people, "branchless banking" through intermediaries such as retail outlets may be far more convenient and efficient than going to a bank branch. For many poor customers, it may be the first time they have access to any formal financial services (Lyman et.al, 2006). Two models of branchless banking through intermediaries are emerging. Banks lead the first model; nonbank commercial players lead the other. Both use information and communication technologies such as cell phones, debit and prepaid cards and card readers to transmit transaction details from the retail agent or customer to the bank.

Finding ways for these outlets to offer financial services has three main economic advantages for banks: (i) it permits an increased physical presence in the area for banks or other providers at drastically reduced set-up costs for banks; (ii) it turns customer service costs into variable costs, insofar as outlets are remunerated per transaction; and (iii) it offers the opportunity to create a familiar service environment for poor, less educated people who may feel intimidated by the

service style at traditional bank branches (Mas, 2008). Technology can enable banks and their customers to interact remotely in a trusted way through existing intermediaries. Customers can be issued bank cards with appropriate personal identification number (PIN) based or biometric security features and the local intermediary - the "banking agent" - can be equipped with a POS device controlled by and connected to the bank using a phone line or wireless or satellite technology. Infrastructure requirements can be further reduced by using mobile phones both to hold "virtual cards" for customers and as a POS device at the store (Mas and Hannah, 2008).

Retail stores are not the only viable intermediaries. Historically post offices have played a role in the provision of remittances and basic financial services to low-income populations. This function is being revived in an increasing number of developing and emerging countries. India Post, with its 155,000 post offices (139,000 of which are located in rural areas), has adopted a multi-agent banking approach(Kugemann, 2009). It distributes financial services on behalf of several partner institutions, thus acting as an agent for each of them, in addition to the development of its own savings accounts. Either directly or through various partnerships, 220 million savings accounts had been opened with India Post by the end of 2009 (Kugemann, 2009). Many postal services are leveraging their physical networks to further develop their financial services business, which generally consists of basic savings, payment and remittance services. The South African Post Office has over 2,400 outlets and due to its universal mandate many of these are located in poor or rural areas.

1.9. The research gap

The combination of technology plus intermediary seems to offer potential to expand financial inclusion in South Africa. The challenge is to develop services that engage poor customers and deploy a workable business model that enables intermediaries to offer such a service. It is important to separate the access component from the services component, at least conceptually, because they have different take-up drivers. The access component is driven by customer comfort with the use of the technology platform (whether card or mobile phone based) and related aspects, such as ease of use, reliability and convenience. The services component provided by the intermediary is driven by the relevance and pricing of each service. However, in practice one cannot disentangle the two components if the focus is on targeting previously unbanked customers (Mas, 2008).

McKay and Pickens (2010) concluded that branchless banking has great potential to reach vast numbers of low income, unbanked people at affordable prices with a wide range of products to meet their complex financial needs. Yet early experience suggests that although the potential is indeed strong, it is by no means guaranteed that branchless banking will deeply penetrate low-income, unbanked segments with appropriately designed products. Indeed, in most countries, the challenge is still getting branchless banking started at all (McKay and Pickens, 2010). A study into several branchless banking ventures around the world found that less than 10 percent of all branchless banking customers are poor and new to banking and are using these channels for financial services or activities other than paying bills, purchasing airtime, or withdrawing government cash benefits (Ivatury and Mas, 2008).

In South Africa, of about one million mobile banking customers, CGAP estimates that fewer than 100,000 fall below South Africa's poverty line, did not have a bank account earlier and now use mobile banking for more than payments or transfers. In Colombia, typical cash transactions through an intermediary are in the range of US$100–200, which suggests that they are not being used by the poorest. In a study in Pernambuco (a particularly poor state in Brazil), CGAP found that only about 5 percent used a banking agent at least once a month for anything more than paying bills or receiving government payments, were previously unbanked and were considered poor by Brazil's standards (Ivatury and Mas, 2008).

Branchless banking has yet to demonstrate pro-poor, pro-growth impacts for households, communities and national economies (Ivatury and Mas, 2008). Whilst there has been little study into the use of technology and intermediaries, other studies into the use of technology to expand financial inclusion have produced similar findings. Cell phone usage has grown phenomenally in Africa and particularly in South Africa where initial growth forecasts have been greatly exceeded. This technology therefore provides opportunities for services such as banking to reach critical mass. All major retail banks in South Africa provide cell phone banking, but very few customers actually use it (Brown et.al, 2003). This highlights the gap between the potential of the technology to expand financial inclusion and the actual adoption of it.

1.10. The research problem

Technology and branchless banking through an intermediary appears not to have delivered on their promise yet. Scholarly research on the adoption and socio-

economic impacts of mobile banking systems in the developing world is scarce. Even less attention has been paid to the social, economic and cultural contexts surrounding the use of these systems (Donner and Tellez, 2008). This study investigates the role of technology and intermediaries and seeks to better understand what factors are crucial for the adoption of technology enabled financial services through an intermediary. The study confines itself to looking at the bottom of the pyramid because this is the area where the approach could have the greatest impact. The study thus seeks to identify those critical factors that determine how the unbanked bottom of the pyramid people in South Africa would adopt financial services offered through an intermediary and to develop a model that could determine the intention of a person at the bottom of the pyramid to adopt financial services through an intermediary.

The research brings together for the first time in a South African context, the study of adoption of financial services using traditional technology adoption theory and the study of intermediaries. In South Africa there is no body of research that has looked at the adoption of financial services through an intermediary, especially for customers at the bottom of the pyramid. To address the goals of this research, a combined research methodology of literature research and fieldwork was chosen. There have been numerous studies into financial inclusion, but to date there has been no study into the adoption of financial services at the bottom of the pyramid in South Africa. In addition to identifying and modelling the adoption of technology enabled financial services through an intermediary, the study will further seek to determine if there are specific group factors that affect adoption. These group factors include gender, age and urban versus rural location. The study approaches the problem from a

technology adoption perspective and will seek to apply technology adoption theory to better understand the factors that determine the adoption of technology enabled financial services through an intermediary.

1.11. The need for the study

The expansion of financial inclusion in South Africa would contribute to a reduction in the poverty level. Poverty alleviation may reduce the burden on the government to provide social welfare grants. Such a reduction would have positive outcomes for the treasury allowing funds to be diverted to other pressing national needs. Lifting people out of poverty would further reduce the pressure on government to provide services to support poor people. The role that expanding financial inclusion can play has been highlighted, however, it is important to understand how financial inclusion can be expanded. The greatest need for expanding financial inclusion is among the poor. In recent times the phrase "bottom of the pyramid" has been used to describe that section of the population who is most deprived. The term "bottom of the pyramid" was first proposed in an article published in 2002 (Prahalad and Hart, 2002). The authors divided the global population into four tiers comprising a pyramid. At the bottom of this pyramid were 4 billion people whose annual per capita income based on purchasing power parity was less than $1,500, the minimum considered necessary to sustain a decent life.

Work by Mendoza (2011) showed that a relatively higher cost is shouldered by the bottom of the pyramid when compared to the non-bottom of the pyramid, in their participation in certain markets. Investing in the bottom of the pyramid would mean potentiallylifting billions of people out of poverty and desperation.

Lifting people out of dire economic conditions would contribute to avoiding social decay, political chaos, terrorism and environmental meltdown that could arise if the gap between the rich and poor continued to widen (Prahalad and Hart, 2002). Since the original work by Prahalad, there have been numerous studies to understand how to better serve this market and through such service to alleviate poverty (Martinez and Carbonell, 2007; Vachani and Craig-Smith, 2008; Pitta et.al, 2008; Anderson et.al, 2010; Anderson and Billou, 2007). In South Africa comparatively little work has been undertaken to understand how to alleviate poverty at the bottom of the pyramid. No significant work has been undertaken to understand how to expand financial inclusion at the bottom of the pyramid and through such expansion contribute to the alleviation of poverty.

1.12. Structure of the thesis

This chapter has provided an overview of the background of South Africa, key aspects of its current economic condition in relation to levels of poverty and described the link between financial inclusion and poverty alleviation. Itprovided an overview of the South African banking environment, discussed the research gap and motivated the need for the study. The remainder of the work is presented in six additional chapters. In chapter 2 the Technology Acceptance Model (TAM) and its extensions are described. A proposed extended model to predict adoption of technology enabled financial services through an intermediary is proposed through the use of grounded theory.The thesis used a national survey to collect date and in chapter 3 the instrument design and data acquisition are described. The chapter covers the sampling methodology, determination of the appropriate sample size and research instrument development. Factors associated being at the bottom of the pyramid in South

Africa are presented, as is the adoption propensity between alternative channels for the provision of financial; services.

In chapter 4 Structural Equation Modelling (SEM) is discussed in detail. The chapter provides an overview of the SEM technique and described the use of the technique to validate the proposed extended model of TAM to explain adoption of financial services at the bottom of the pyramid.Chapter 5 contains the results of the analysis including the testing of the hypothesis of the proposed model. A multi-group analysis to test the model for invariance is also presented. Using the validated extended TAMmodel as a basis, chapter 6proposes strategic architecture for expanding financial inclusion at the bottom of the pyramid. This chapter utilises the results of the work to propose an approach for expanding financial inclusion through the use of technology and intermediaries at the bottom of the pyramid. In chapter 7 the conclusions, limitations of the study and a future scope of work are presented.

CHAPTER 2

Extended Technology Acceptance model development

In this chapter a model is proposed to explain the adoption of technology enabled financial services at the bottom of the pyramid. The basis for the proposed model is the Technology Acceptance Model (TAM) (Davis, 1986; 1989). The chapter begins with an overview of the TAM in the context of financial services in section 3.1. Since the development of the TAM it has been expanded to understand adoption beyond its initial field. The most significant additions to the TAM are discussed in section 3.2. Using a grounded theory approach, constructs for the acceptance of technology enabled financial services are derived from the literature in section 3.3 and the proposed extended TAM model is presented in section 3.4. The proposed model implies a number of hypothesis and these are detailed in section 3.5. The conclusion to the chapter is presented in section 3.6.

2.1. The Technology Acceptance Model

Notwithstanding significant work on technology adoption studies, there has been limited research on the interventions that can potentially lead to greater acceptance and use of information-based technology (Venkatesh, 1999). The most widely employed model of adoption and use is the TAM that has been shown to be highly predictive of information technology adoption and use (Davis et.al, 1989; Adams et.al, 1992; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000). Most of the current approaches to understanding and modelling the adoption of technology can be traced back to work done by Davis (1986, 1989)

who defined the TAM to understand the adoption of information systems in the workplace.

The basis of the TAM is the Theory of Reasoned Action (TRA). The TRA (Fishbein and Ajzen, 1975) is a model based in social psychology that explains an individual's behaviour and has been widely used by researchers to explain information technology adoption (McKnight et.al, 2002; Venkatesh et. al, 2003). According to the TRA, behaviour is predicted by intention. Intentions are jointly determined by two factors: (1) the person's attitude toward this behaviour, which is a function of beliefs about consequences of this behaviour and (2) subjective norm defined as an individual's perception of whether people important to the individual think the behaviour should be performed. Attitude toward the behaviour is defined as the individual's positive or negative feelings about performing the behaviour. Based on TRA, Davis (1989) proposed the TAM for predicting information technology usage. The TAM is shown in figure 2.1.
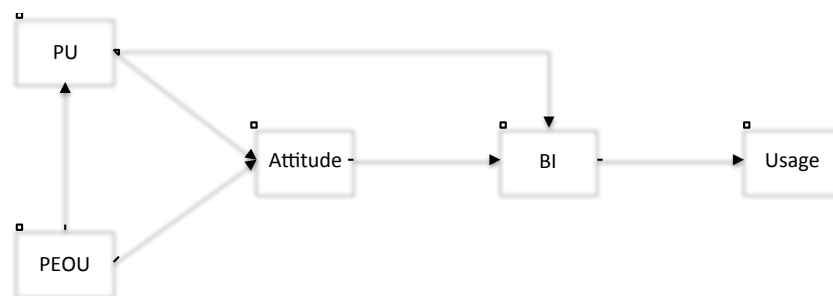

Figure 2.1: The Technology Acceptance Model (Davis, 1989)

While the TRA was designed to explain virtually any human behaviour, the goal of the TAM was to provide an explanation of the determinants of computer acceptance across a broad range of end-user computing technologies and user populations (Davis et. al, 1989). According to the TAM, actual system usage is

directly determined by behavioural intention (BI) to use. BI is in turn influenced by the user's attitude toward using the system and perceived usefulness. Attitude is jointly determined by perceived usefulness (PU) and perceived ease of use (PEOU) of the system. Both PU and PEOU are affected by external variables, such as individual differences, situational constraints, organisational characteristics and system characteristics. Over the last two decades, there has been substantial empirical support in favour of TAM (e.g., Adams et al., 1992; Agarwal and Karahanna, 2000; Karahanna et.al, 2006; Venkatesh et al., 2003, 2007).

2.2. The Technology Acceptance Model in financial services

In section 2.1 the TAM was introduced. Whilst the TAM was originally used to study adoption intention of computer systems in a workplace setting, it has been used to study adoption in a broader range of settings, including financial services. Yaghoubi (2010) investigated which factors let to the adoption of online banking in Isfahan province of Iran. The results confirmed the TAM's robustness in predicting customers' intention to adopt of online banking. Jaruwachirathanakul and Fink (2005) successfully used the TAM to study the adoption of Internet banking services in Thailand. Pikkarainen et.al (2004)used the TAM to study online banking in Finland whilst Riquelme and Rios (2010) used the TAM to test the factors that influenced adoption of mobile banking among users in Singapore. Amin (2010) used the TAM to determine whether customers in Eastern Malaysia would use ATM banking. McKenchie et.al (2006) used the TAM to study the use of an online channel to distribute financial services whilst Gu et.al (2009) investigated determinants of users intentions to

adopt mobile banking using the TAM. The TAM has been successfully used to study adoption intention in financial services across a number of studies.

2.3. Extension of the Technology Acceptance Model

As the TAM moved beyond its original setting, researchers have identified shortcomings in the model that needed addressing. The results of this were modifications to TAM. Modifications involvedthe introduction of new variables and constructs. Attempts to extend TAM have generally taken one of three approaches. The first approach has been the introduction of factors from related models. The second approach has involved introducing additional or alternative factors and the third approach examined antecedents and moderators of PU and PEOU (Wixom and Todd, 2005). The first significant extension to the TAM was developed by Venkatesh and Davis (2000). This extension examined antecedents and moderators of PU and PEOU. The new model, called TAM2, explained PU in terms of "cognitive instrumental processes" including job relevance, output quality and result demonstrability. PEOU was explained in terms of "social influence processes" including subjective norm, voluntariness and image. The model of TAM2 is shown in figure 2.2.
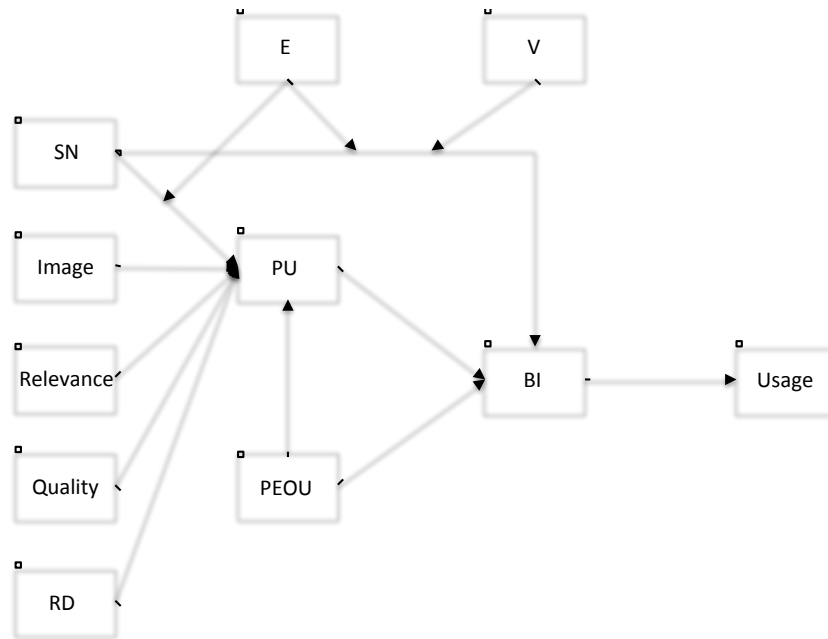
Figure 2.2: The TAM2 (Venkatesh and Davis, 2000)

The primary extensions to the TAM that were introduced by TAM2 were the inclusion of social influence processes (subjective norm, voluntariness and image) and cognitive instrument process (job relevance, output quality and results demonstrability) (Venkatesh et al., 2003). The additional constructs were proposed to be determinants of PU, whilst subjective norm also directly affected BI. Subjective norm has been defined as "the perceived social pressure to perform or not to perform the behaviour" in question (Ajzen, 1991). Subjective norm has also been defined as an individual's perception or "opinion about what important others believe the individual should do" (Finlay et.al, 1999). Image was defined as the degree to which the use of an innovation is perceived to enhance one' status in one's social system. Voluntariness related to the freedom potential adopters felt toward the adoption decision.

The introduction of organisation constructs reflected the degree to which a new technology could improve a person ability to do their job. These constructs were

premised within a workplace setting. Job relevance was defined as an individual perception regarding the degree to which a new technology is applicable to their job. Quality was defined as the degree to which the task matched the job goals of the potential adoptee while the inclusion of results demonstrability was taken from work of Moore and Benbasat (1991). Moore and Benbasat (1991) had defined results demonstrability as the "tangibility of the results of using an innovation". The inclusion of specific task and outcome variables in TAM recognized that a key factor in adoption was the ability of the technology to enable the adoptee to achieve their goals. TAM2 further proposed the introduction of moderators. It was proposed that personal experience and voluntariness would moderate the strength of the relationship between subjective norm and BI. The extended model was able to account for 34-52 percent of the variance in usage intentions in four organisations that were studied.

The second major addition to the body of work related to the TAM was the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al, 2003). The UTAUT was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain usage behaviour. The UTAUT was formulated, with four core determinants of intention and usage and up to four moderators of key relationships. The theory proposed that four key constructs play a significant role as direct determinants of user acceptance and usage behaviour: performance expectancy, effort expectancy, social influence and facilitating conditions. Gender, age, experience and voluntariness were posited to mediate the impact of the four key constructs on usage intention and behaviour. The UTAUT model is shown in figure 2.3.
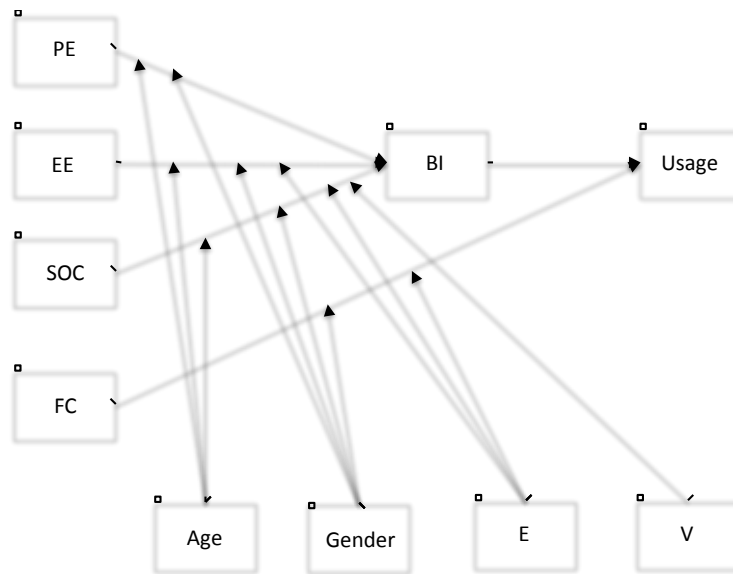
Figure 2.3: The Unified Theory of Acceptance and Use of Technology (UTAUT)
(Venkatesh et.al, 2003)

The model defines facilitating conditions as the degree to which an individual
believes that organisational and technical infrastructure exists to support use of
a system they are adopting. Performance Expectancy was the degree to which an
individual believed that using a new system would help him/her to attain gains
in job performance. If there was an expectation that performance would be
enhanced, adoption increased. Effort Expectancy was the degree of ease
associated with the use of system. This construct in the other models was similar
to PEOU in the original model proposed by Davis (1989) and relates to ease of
use of a new system. Social Influence was the degree to which an individual
perceived that important others believe he/she should use the new system.

The UTAUT proposed that facilitating conditions would directly influence usage,
while the remaining three constructs would influence BI. The UTAUT further
expanded the constructs in the original TAM through the recognition of the role

of effort in discharging the new task and support systems play in adoption. The UTAUT also further expanded on the role of moderators that had first been explicitly included in TAM2. As in TAM2, experience and voluntariness were defined in the same manner and proposed to moderate the strength of the relationships within the model with the exception of performance expectancy. The model also explicitly introduced age and gender as moderators. Subsequent validation of UTAUT in a longitudinal study found it accounted for 70 percent of the variance in usage intention.

Venkatesh and Bala (2008) argued that while prior research had provided valuable insights into how and why employees make a decision about the adoption and use of information technology in the workplace. From an organisational point of view, however, the more important issue they held was how managers made informed decisions about interventions that could lead to greater acceptance and effective utilization of information technology. The authors analysed prior research on TAM and developed a theoretical framework that represented the cumulative body of knowledge accumulated over the years from TAM research. They called their model TAM3. TAM3 presented a complete network of the determinants of individuals' IT adoption and use. The authors suggested three theoretical extensions beyond TAM2 and the model of the determinants of PEOU.

Building on the anchoring and adjustment framing of human decision making, Venkatesh (2000) had proposed a model of the determinants of PEOU. Venkatesh (2000) argued that individuals form early perceptions of PEOU of a system based on several anchors related to individuals' general beliefs regarding computers

and computer use. This is an attitudinal construct. The anchors suggested by Venkatesh (2000) were computer self-efficacy, computer anxiety and computer playfulness and perceptions of external control. This was the recognition of the role of attitude in adoption as well as the influence of personal locus of control. The TAM3 model is shown in figure 2.4
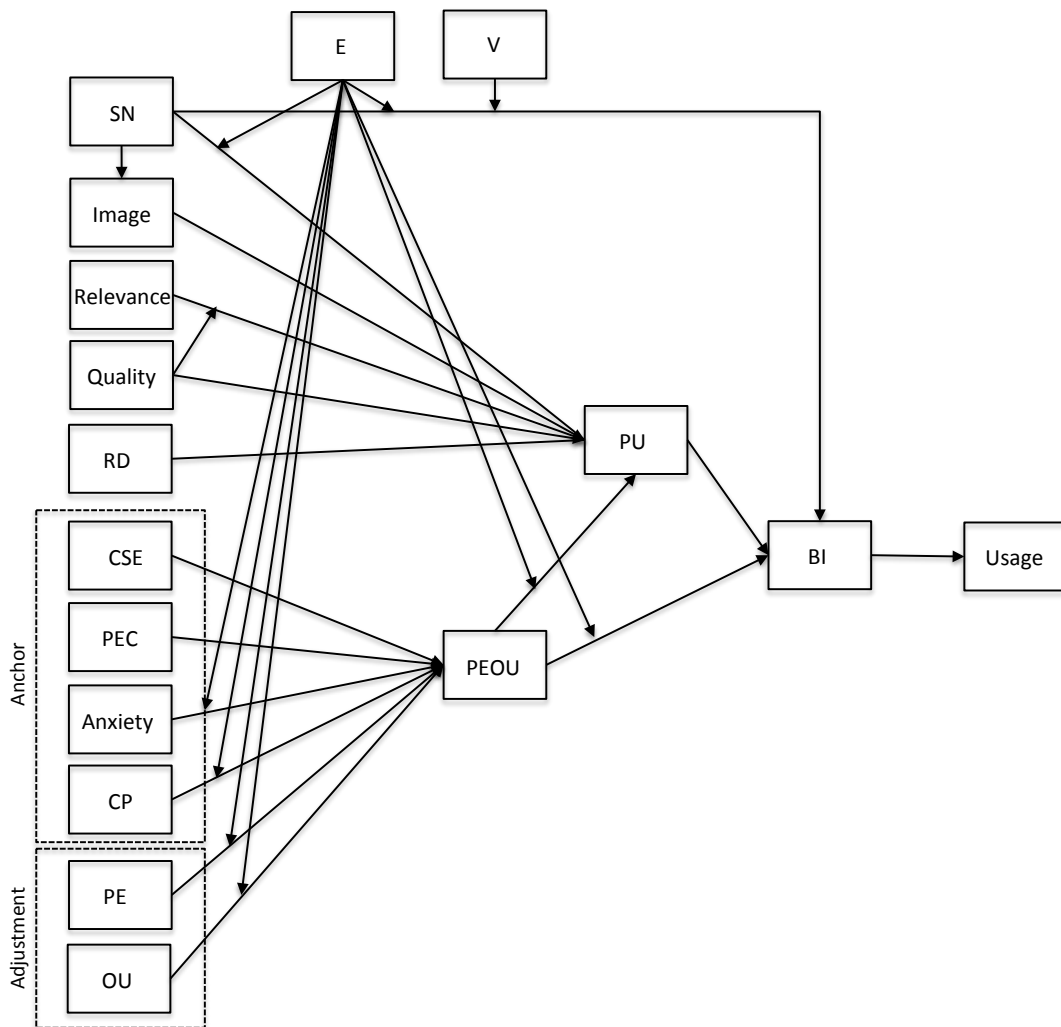

Figure 2.4: The TAM3 (Venkatesh et.al, 2008)

The first three of these anchors represent individual differences or general beliefs associated with computers and computer use. Computer self-efficacy refers to individuals' control beliefs regarding his or her personal ability to use a system.

Perceptions of external control are related to individuals' control beliefs regarding the availability of organisational resources and support structure to facilitate the use of a system. Computer playfulness represents the intrinsic motivation associated with using any new system. Venkatesh (2000) suggested that while anchors drive initial judgments of PEOU individuals would modify these judgments after they gain direct hands-on experience with the new system. Two system characteristics–related adjustments perceived enjoyment and objective usability were suggested by Venkatesh (2000) to play a role in determining PEOU after individuals gain experience with the new system. Longitudinal field studies were conducted to test TAM3. Data were collected from four different organisations and overall, TAM3 was able to explain 53 percent of the variance in BI.

TAM has proven over time to be the most influential technology adoption model (Adams et.al, 1992; Venkatesh and Morris, 2000; Venkatesh, et al., 2003). Although many models had been proposed to explain and predict the use of technology, the TAM has been the model that has captured the most attention of the information systems community (Chuttur, 2009). Legris et.al, (2003) conducted an analysis of empirical research using TAM and suggested that there may be a need to include additional factors beyond that defined in the original model. McCoy et.al, (2007) studied the cultural transferability of the TAM and found that that TAM does not hold for certain cultural orientations. Bagozzi (2007) referring to the role of culture argued that the TAM neglected group, social and cultural aspects of decision-making on technology adoption. Van de Wijngaert and Bouman (2009a; 2009b) highlighted that, in addition to personal

characteristics, context characteristics played an important role in technology adoption.

2.4. Use of grounded theory to derive proposed model constructs

In order to model the adoption of financial services through an intermediary at the bottom of the pyramid, the original TAM and its modifications were studied. The addition of constructs that related to social, effort expectancy, enjoyment and self efficacy, among others, provided a framework to propose a model to explain adoption at the bottom of the pyramid. To identify other constructs modifications to the TAM reported in empirical studies, a literature search was carried out. The use of TAM to study adoption of technology enabled financial services was evaluated by searching various databases for related studies. Three large databases (ABI / Inform, Business Source complete and Social Sciences Citation Index) were searched. A total of 19 studies in which TAM was used to explain adoption of financial services were identified. Many studies described additional constructs to enhance the ability of TAM to predict adoption, but the authors used different naming conventions for these constructs. In order to classify the additions in a systematic way a grounded theory approach was used (Glaser and Strauss, 1967; Strauss and Corbin, 1990; Corbin and Strauss, 1990). Grounded theory offers a way to compare and categorise similar qualitative concepts across different studies in a methodological way, through the use of a coding schema (Strauss and Corbin, 1990).

Grounded theory is best regarded as a general theory of scientific method concerned with the detection and explanation of social phenomena (Martin and Turner, 1986). To this end, grounded theory is a problem-oriented endeavour in

which theories are generated from patterns, elaborated through the construction of plausible models and justified in terms of their explanatory coherence. The basic idea of the grounded theory approach is to read the work and label variables (called categories, concepts and properties) and their interrelationships. While the use of the grounded theory method in the discipline of information systems is relatively recent and quite rare, is a useful method for generating concepts about technology (Bryant and Charmaz, 2007). The grounded theory approach has previously been used in studying information systems (Baskerville and Pries-Heje, 1999; White and Weatherall, 2000; Winkelman et.al., 2005; Arcs and Razali, 2009).

In conducting the analysis of the 19 papers, the structured methodology for coding proposed by Dey (1999) and Strauss and Corbin (1990) was used. The process of reviewing the papers began with an open coding exercise of each paper in which concepts from the text were found and categorised. For each paper from the results, discussions and conclusions of the authors the relevant sentences in which findings related to the constructs were described was identified. For each section the relevant text was recorded and assigned a code. It was attempted to assign the descriptive used by the author, but where there was no descriptive a code based on the reading of the relevant text was assigned. Once the open coding had been completed, axial coding was undertaken. Axial coding is the appreciation of concepts in terms of their dynamic interrelationships and this forms the basis for the construction of the classification (Strauss and Corbin, 1990). Once a concept has been identified through open coding, its attributes are explored in greater depth and its characteristics determined. Similar open codes

were then subsumed into a core category. A core category pulls together all the strands in order to offer a descriptive of the behaviour under study.

As PU, PEOU and Attitude are already established as part of the TAM model, these were retained for those variables that fitted into this category of constructs, to ensure consistency with the established theory.In addition to the original constructs of PU, PEOU and Attitude the researcher has identified five additional constructs that he believes are important in understanding the adoption of technology enabled financial services. These additional constructs were grouped after reviewing the literature into the usage of the TAM and its extensions in modelling the adoption of financial services through technology. Each of the groupings is discussed in turn.

2.4.1. Social

Several of the previous adaptations cited above highlight the need to take cognizance of social factors in understanding the adoption of technology. Social constructs were highlighted as modification in TAM2, UTAUT and TAM3. Social constructs relate to how an individual perceives himself or herself within their broader social context and in particular how they perceive that others would view their decisions. A number of studies that utilized the TAM or its enhancement to study adoption of technology enabled financial services included constructs consistent with this classification. Often these constructs had differing names but were defined very similarly. Amin (2009) studied factors influencing online banking acceptance in Borneo, Malaysia and defined Social Norm as the person's perception that most people who are important to them would think they should or should not adopt online banking.

Hwang (2010) investigated the intention to adopt an e-commerce system also defined Social Norm while Riquelme and Rios (2010) tested the factors that can influence adoption of mobile banking among users of Internet banking in Singapore and included Social Norm. A construct similar to social norm was defined by Bhatti (2007) whilst studying mobile commerce adoption in the United Arab Emirates. Bhatti (2007) defined the construct, Subjective Norm, as the perception that salient social referents think the respondent should or should not perform a particular behaviour. Subjective Norm was also defined by other authors such as Yaghoubi (2010) when investigating which factors affect the adoption of online banking in Isfahan province of Iran. The role of social constructs has been highlighted as playing a significant role in adoption theories. The opinion of social peers or social structures in providing support to BI has been found to be a significant determinant in understanding adoption.

2.4.2. Task

This category of constructs is associated with aspects of executing the task associated with the intended behaviour. It relates to the information, effort, expected performance and resource expectancy a person has in executing the tasks associated with the intended behaviour. Bandyopadhyay (2007) considered the role of culture in the user adoption of technology and found that social influence, along with performance expectancy and effort expectancy were significant factors influencing consumers' intention to use prepaid metering systems. Wang and Shih (2009) investigated the determinants of use behaviour regarding information kiosks and validated the extension of TAM developed by Venkatesh and Davis (2000) by including the addition of task constructs. In

investigating factors that influence the acceptance of online banking services in Australia. Yeow, et al. (2008), defined facilitating conditions as the degree to which an individual believes that infrastructure exists to support or facilitate the use of online banking as a construct.

Researchers have studied the determinants of mobile payment services adoption in China (Yang et.al., 2012) and defined Perceived Fee that relates to monetary expenses that the consumer will incur, as a predicative construct. In investigating the adoption of mobile banking (Zhou et.al., 2010) facilitating conditions and task technology fit were found to affected adoption. Task-technology fit is the degree to which a technology assists an individual in carrying out his or her tasks and facilitating conditions are those environmental factors that enhance the individual's ability to carry out the task. The literature has highlighted factors that are associated with executing the tasks associated with the intended behaviour as additional constructs that are needed to fully understand BI.

2.4.3. Self-Efficacy

Self-efficacy is defined as the belief that one is capable of performing in a certain manner to attain certain goals. It is a belief that one has the capabilities to execute the courses of actions required to manage prospective situations. Self-efficacy has been identified by a number of researchers as an additional construct for the TAM. Luarn and Lin (2005) extended the applicability of the TAM to a mobile banking context by adding one trust-based construct ("perceived credibility") and two resource-based constructs ("perceived self-efficacy" and "perceived financial cost") to the model. The results strongly supported the

extended TAM in predicting users' intentions to adopt mobile banking. Yaghoubi (2010) investigated which factors affect the adoption of online banking in the Isfahan province of Iran. The authors developed a theoretical model based on the TAM along with the theory of planned behaviour (TPB). The results indicated that the intention to use online banking was positively affected mainly by perceived behavioural control and PU.

Perceived behavioural control reflects a person's perception of the ease or difficulty of implementing the behaviour in question. It concerns beliefs about the presence of control factors that may facilitate or hinder their performing the behaviour and relates to the self-confidence a person has. Yeow et.al (2008) investigated both positive and negative factors influencing user acceptance of online banking services in Australia using the UTAUT model. The authors validated the model but also added anxiety. Anxiety was defined as the degree to which an individual becomes anxious when it came to using the service. Anxiety was defined as a lack of self-confidence in using the technology. Enhancement to the TAM through the addition of self-efficacy related constructs has been found to improve the TAM ability to explain adoption of technology enabled services.

2.4.4. Attitude

Taylor and Todd (1995) were among the first researchers to incorporate attitudinal related constructs into an extension of TAM. Attitude is defined as holding a positive or negative opinion toward an event, situation, person or product. Attitudes can play a role in decision-making and the TRA, which formed the basis for the TAM, suggests that a person's behavioural intention in part depends on a person's attitude about the behaviour. Attitude had originally been

a construct in the TAM; acting as a mediator, but in subsequent enhancements such as TAM2 and TAM3 the mediator was removed. In studying the adoption of Internet banking in Taiwan (Lee, 2009) the researchers combined the theory of planned behaviour (TPB) with the TAM model and proposed a theoretical model to explain customers' intention to use online banking. This work highlighted that attitudinal related constructs were key in understanding adoption intention. Kulviwat et al (2007) noted that there had been little integration of affect, or subjective experienced emotion, into applications of TAM. The researchers found substantial improvement in the prediction of technology adoption by consumers following the integration of attitudinal constructs of affect and cognition into the TAM. Yaghoubi and Bahmani (2010) showed that the intention to use online banking is primarily affected by perceived behavioural control and attitude as predictors of BI. The literature has shown that attitudinal constructs directly influence and indirectly affect BI.

2.4.5. Hedonistic

From the literature analysis it was found that it was possible to group constructs that related to fun, enjoyment and pleasure into a construct. As the TAM has moved beyond its original field of information system adoption into consumer service adoption, the concept of fun and enjoyment has recently become an area for the addition of new constructs to explain adoption. Fun, pleasure and enjoyment related factors have been labelled hedonistic by the researcher. Hsiao and Yang (2010) recently conducted a co-citation analysis and determined that the first emerging trend of TAM is task- related or utilitarian information systems, including job-related systems, e-learning and management information systems. The second trend in TAM research is e-commerce and finally, the third

and recent trend of TAM–hedonic systems, emerged. In this trend, intrinsic motivational factors such as perceived playfulness or ease of use have a more powerful effect than PU on building positive attitude toward adoption. The definition has been adopted from van der Heijden (2004).

Hedonistic constructs aim to describe adoption in terms of self-fulfilling rather than instrumental value to the user. Shang et.al (2005) examined whether such intrinsic motivations can be used to explain consumers' acceptance of on-line shopping. Results showed that fashion and cognitive absorption experiences on the web were more important than their extrinsic factors in explaining on-line consuming behaviour. The role of enjoyment is seen to play a greater role in the adoption of technology-enabled services as these migrate out of the workplace and into customer focussed activities. Where customers have a choice of alternative providers or channels, an important factor that determines BI is found to be enjoyment, fun or fulfilment. Hedonistic factors may thus play an important role in adoption of consumer focussed technology enabled financial services.

2.5. The proposed extended Technology Acceptance Model

In deriving a proposed model to account for technology adoption through an intermediary it is proposed that a similar set of factors will be applicable as those used for the TAM and its extensions. The adoption of a technology-enabled service through an intermediary is expected to primarily be about the underlying service and technology whilst those factors that specifically relate to the intermediary can be accommodated by existing constructs in TAM supported by

additional constructs drawn from the literature. The proposed model is illustrated in figure 2.5.
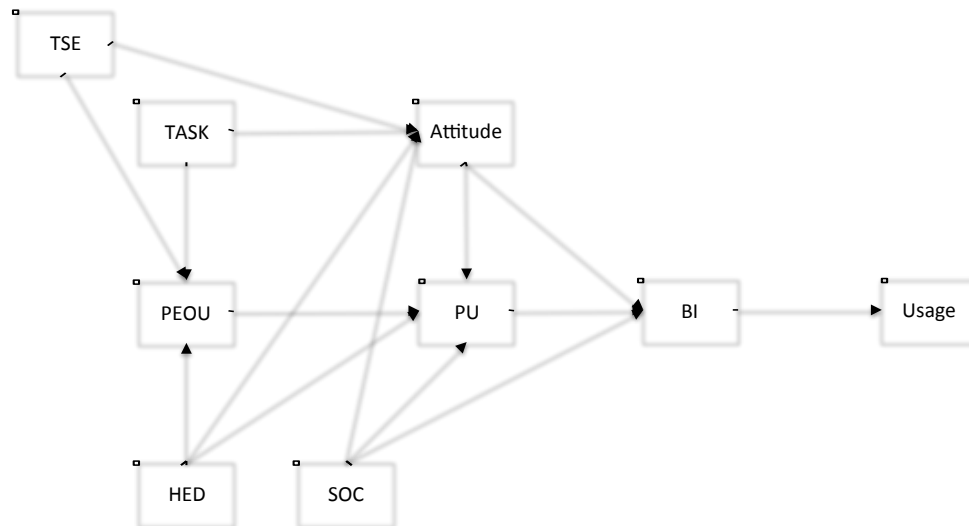

Figure 2.5: The proposed extended TAM

The basis for the proposed extension of TAM to understanding the adoption of financially services through an intermediary is the original work of Davis (1989). The extensions to the TAM contained in TAM2, UTAUT and TAM3 have also been analysed. As in the original model BI is proposed to determine actual usage, whilst PU directly affects BI. It is proposed that two additional factors will have a direct BI, social factors (SOC) and attitude. The original model of the TAM proposed that PEOU would have an indirect effect on BI through PU and attitude. The relationship between PEOU and PU is retained, however based on the literature review, it is proposed that the effect of hedonistic factors (HED); task related factors (TASK) and technology self-efficacy (TSE) would also have an effect on BI. HED and TASK are proposed to indirect affect BI through PU and attitude respectively. Since the model proposed to model the adoption of a technology enabled service, the role of self-confidence and belief in the use of

technology is expected to be significant. TSE is thus proposed to be a determinant of PEOU as well as attitude.

2.6. Hypothesis of the proposed model

From the proposed extended TAM model a number of hypothesis were derived. Each of the implied hypotheses contained in the model are presented in discussions related to the respective constructs.

SOC was defined as a person's belief that others they regard as important socially, their social referents, would approve of or expect them to behaviour in a particular manner. Social factors may thus contribute what a person feels is acceptable or unacceptable actions. People who place a high value on social referents would be more likely undertake an activity if through undertaking it their standing relative to their social referents would be raised. In the context of using financial services through an intermediary, social factor may manifest in social referents approving or through use encouraging others to utilise the service. SOC is thus likely to directly affect BI. Attitude is defined as a person's set of beliefs about a particular situation – either positive or negative. The opinions that social referents hold about a service may affect a person's own opinion about the service if they place a high value on social referents. If the opinion of social referents relates to how useful a service is it may also affect how usefula person perceives the service to be. In communities where there is strong social cohesion or in communities where traditional forms of leadership still apply, social constructs may have a greater influence than in other communities. Three social construct hypotheses arise from the proposed model.

HYPOTHESIS 1: SOC will directly affect BI

HYPOTHESIS 2: SOC will have an indirect effect on BI through PU.

HYPOTHESIS 3: SOC will have an indirect effect on BI through attitude.

In the original TAM, PU was defined as the extent to which a person believes that using an IT will enhance his or her job performance. PU has consistently been found to be one of the most important predictors of BI. In the context of the use of financial services, PU is similarly defined as the belief that using financial services through an intermediary would enhance a person's ability to manage their money better. The more useful the service is seen to be from a potential bottom of the pyramid customer perspective, the more likely it will be that the customer will form an intention to use the service. A single hypothesis related to PU arises from the proposed model.

HYPOTHESIS 4: PU will directly affect BI

Attitude is an opinion – either positive or negative – to a person, place, event or situation. In the original TAM proposed by Davis (1989) attitude was a mediation variable between PEOU and PU. Whilst the original TAM contained the constructs attitude, subsequent enhancements have removed it as a construct that affects BI. In the context of the provision of financial services through an intermediary, attitude is defined as the opinion that a person has toward the concept. Because an attitude can have an on beliefs and as original proposed in the TRA, attitude may have an effect on intention. If people have a strong positive or negative attitude toward the provision of financial services through an intermediary it will directly affect BI. Because of the strong influence that beliefs

may have on intention, it may also affect how a person sees the usefulness of financial services offered through an intermediary. If someone has a negative attitude toward the concept, it may be likely that they will consequently also feel that the concept is not useful in their lives. Consequently two hypotheses related to attitude arise from the model.

HYPOTHESIS 5: Attitude will directly affect BI

HYPOTHESIS 6: Attitude will have an indirect effect on BI through PU.

In the original definition of the TAM, PEOU was defined as "the degree to which a person believes that using a particular system would be free from effort" (Davies, 1989). In the context of provision of financial services through an intermediary, PEOU is proposed to play a similar role. Factors associated with being a bottom of the pyramid person may render a concept hard to use. Being at the bottom of the pyramid is strongly associated with poverty and lower levels of education. Consequently bottom of the pyramid people may not be able to use electronic financial services if it is not presented in their home language. Such services may be designed in such a way that it requires require a level of education beyond what they have attained. PEOU in relation to the provision of financial services through an intermediary is defined as how easy people perceive the service will be to use. If people perceive that the concept will be easy to use, it is likely that they will find it useful. A single hypothesis related to PEOU arises from the proposed model.

HYPOTHESIS 7: PEOU will indirectly affect BI through PU.

In a consumer setting there is not mandated use and consumers often have alternative choices. The role of enjoyment, fun and fulfilment was previously highlighted in the literature as an important factor in determining BI. In some settings, such as online gaming where the purpose of the activity is enjoyment itself, having fun may directly affect BI. The hedonistic construct is defined as perceptions relating to comfort or enjoyment that a person expects to experience when using financial services provided through an intermediary. If people enjoy using a service, or are comfortable enough to try it, they may perceive that the service is easy to use. An enjoyable experience is also likely to result in a positive opinion of the service itself and thus affecting a person's attitude. Comfort in using a service may well enhance the perception that the service is useful. HED factors are thus likely to influence BI indirectly. Consequently three hypotheses related to hedonistic factors arise from the model.

HYPOTHESIS 8: HED will directly affect PEOU. HED factors will thus be a determinant of PEOU.

HYPOTHESIS 9: HED will have an indirect effect on BI through attitude.

HYPOTHESIS 10: HED will have an indirect effect on BI through perceived usefulness.

When the TAM was developed it included the concept of determinant. Determinants were defined as variables that influence early perceptions about the ease of use of a new system. Determinants thus played a role as a variable that can influence a latent factor. Task related factors are defined as factors that relate to executing the task that a person has chosen to undertake. In a work context it is related to how well a new system enables a person to carry out their

job. In a consumer context, where mandated use does not apply, task related factors play a similar role. In the context of financial service adoption through an intermediary, task is defined from a utility perspective. In order for a bottom of the pyramid person to effectively carry out the task of managing their money effectively, a number of task related issues might arise. Bottom of the pyramid may be treated badly because of discrimination based on their economic standing. They may not be able to afford to use the service because of cost. Services that are provided in a language different to their home language may prevent them for being able to use the service. Task in the context of the model is defined as those factors that enable the bottom of the pyramid person to effectively execute a decision to make use of financial services offered through an intermediary. If bottom of the pyramid people are able to carry out the financial services through an intermediary it is likely that they will find the service easy to use. If a person is able to execute the task they are likely to form a positive opinion of using the service. Consequently two hypotheses related to the desired task arise from the model.

HYPOTHESIS 11: TASK factors will directly affect the PEOU of a service. TASK factors will thus be a determinant of PEOU.

HYPOTHESIS 12: TASK factors will have an indirect effect on BI through attitude.

As the provision of financial services has migrated from over the counter to technology enabled, confidence in using technology has become more important. Earlier the expansion of technology-enabled service to reduce cost and improve access was highlighted. If people do not have the confidence or belief to use

technology it is likely that they will not be able to take advantage of easier access and reduced cost. In the context of using financial services through an intermediary, technology self-efficacy is defined as the self-belief, or confidence, to use technology. The types of technology that such self-belief would relate to include ATM, POS, Internet banking and mobile banking. As with the task construct, if people are confident in the use of technology it is likely that they will find it easier to use. This may likely effect their perception on how easy such a service would be to use as well as enhance their opinion of the service itself. Consequently two hypotheses related to technology self-efficacy arise from the model.

HYPOTHESIS 13: TSE will directly affect PEOU. TASK will thus be a determinant of PEOU.

HYPOTHESIS 14: TSE will have an indirect effect on BI through attitude.

2.7. Conclusion

This chapter has presented and discussed the literature on technology acceptance theories and models and highlighted the TAM and its extensions. The original TAM was developed to explain the adoption of technology in a workplace environment and has become the most widely used technology adoption model. As the usage of the TAM expanded into different work settings and outside of mandated use, extensions to the model were developed to deal with its original shortcomings. The introduction of TAM2 saw the incorporation of social related constructs and constructs related to executing a task. Further expansion of the TAM through the introduction of the UTAUT model and TAM3 expanded these factors further and also introduced the concept of moderators such as gender, age

and educational levels. In considering the application of TAM to financial services a review of the literature has indicated that researchers have added additional constructs to enable the TAM to better predict adoption in an environment where use is not mandated.

From the literature a number of additional constructs have been identified that need to be taken into consideration if a complete picture of adoption of financial services through an intermediary is to be fully understood. Social constructs, task related constructs, self-efficacy, attitude and constructs related to enjoyment have been identified as being important extensions to the TAM as proposed by Davis (1989). Utilising the additional constructs and taking the TAM and its extension (TAM2, UTAUT and TAM3) the researcher proposes an extension that can explain the adoption of financial services through an intermediary at the bottom of the pyramid. The extended model produces a total of fourteen hypotheses that can be explicitly tested.

Advances in technology have allowed the delivery of financial services outside of the traditional branch infrastructure that banks have historically used. These advances have not only enabled more convenient banking in general, but allowed banks to address the challenge of serving the poor in a cost effective manner. The growth of mobile phone and communication technology allows for the expansion of financial inclusion to the bottom of the pyramid where it may have been prohibitively expensive in the past. These developments have allowed for the emergence of a model that may successfully expand financial inclusion. The emergence of an intermediary, that uses the advance in technology to offer

financial services, has led to meaningful expansion of financial services in countries like Brazil.

This approach has potential in South Africa where supermarkets and the post office can play the role of intermediary. Whilst the combination of technology and intermediary has potential to expand financial inclusion, research to date shows that the model has not realised its full potential. Very little, if any, work on this subject has been undertaken in South Africa. There is a further need to understand what the factors are that determine adoption at the bottom of the pyramid if it is to realise its potential to expand financial inclusion. The research problem is one of understanding what factors in a South African context determine the adoption of technology enabled financial services at the bottom of the pyramid. Understanding the role of technology adoption is key and the most successful technology adoption theory, the TAM, provides a basis for undertaking such a study.