

ANALYSIS OF ENVIRONMENT FOR INTERNET BANKING SERVICES IN LATIN AMERICA*: BRAZIL AND MEXICO CASES

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Resumen

Este artículo describe las condiciones para el desarrollo del *e-banking* en Latinoamérica. En la medida en que crecen exponencialmente los usuarios de Internet se ha vuelto esencial analizar el entorno –específicamente en esta región– para descubrir los obstáculos y retos de la banca por Internet. Este artículo muestra una base para el desarrollo de la banca y analiza algunos factores de gran impacto en este proceso. Finalmente, se hacen algunas conclusiones sobre el futuro de la banca electrónica.

Abstract

This paper describes Latin American conditions for e-banking development, as there is intensive Internet users growth, it is essential to analyze environment and specific of this region to discover obstacles and challenges connected with Internet banking. Generally this paper shows base for

on-line banking development and gives factors that have essential impact on this process. Finally there are given conclusions about future of Internet banking.

Key words

Latin America, Internet banking, Internet development, Internet banking adoption.

J.E.L Classification: L80, L86

Introduction

During the last 100 years, banks where places where people went to meet with formal dressed workers. Now it is the place where you enter virtually and deal with electronic advisors. Traditional banks changed to exist in virtual environment in order to follow technological changes in nowadays world. Banking in the cloud of electrons became the future of banking. Now the people need banking, not banks. Therefore the banks need to operate

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in virtual environment.¹ This paper is divided in three sections. The first section describes an outline of internet Banking in Latin America and the reasons for increasing use of internet banking. The second section shows some important statistics about internet usage and a review of main papers and working papers about this topic. The third part offers some profiles of Internet users in Latin America and give some conclusions about the future of the Internet usage for this region.

A brief outline of Internet Banking in Latin America

The Internet scenario in Latin America is different from the one in the developed regions on the world. E-banking is not so common used and people are still not convinced about using e-services (fear of fraud and insecurity).

Hazell and Raphael (2001) in their report about Internet banking in Latin America call banking system in this region as being still "under the mattress". It is justified in low bank penetration and low developed e-service area in banking. People still aren't adopted to use Internet banking. It can be easily noticed by huge queues in front of bank offices every day in Latin America.

Better use of Internet services can result in timesaving for customers as well as in diminishing costs of

transactions for banks (90% lower costs). However it can not be achieved without changes in low average GDP per capita, low computer penetration index and low teledensity rates in the whole region. On the other hand, positive growth indicators mean that there is great opportunity for banks to develop their e-services.

Generally the banks open more and more e-banking services, however the use of them is not well known among customers. They still prefer more traditional banks and services offered by them. However it depends on the region in Latin America. The e-banking services are common used in Brazil, which is leader in Internet banking in Latin America. Briefly speaking the first bank in Latin America that offered its services through Internet was Brazilian Bank - Banco Bradesco (in 1996 Bradesco launched the first Latin American Internet Banking system). From the beginning it became the pioneer on the market gaining 750,000 online customers till 2000. It offers a wide range of e-services from basic one till optimizing financial management for customers through Internet. The success of this bank laid in strategy of offering free Internet access to its clients.² Bradesco became also the first bank offering m-banking service as well as customizable security options to customers using e-banking. The

1. S. Long, *The Virtual Threat.*, *The Economist* Vol. 355, Nr 8171, 18 May 2000, p. 38.

2. *The E-Bankers*, Latin Trade, September 2000, in: P. Hazell, Z. Raphael, *Internet Banking: Disruptive or Sustaining Technology*, Field Project Report, Boston 2001, p. 23.

successful development of online banking sector in Brazil was possible thanks to early use of technology in banking, implementation of electronic clearance systems by government, as well as incentives offered to customers (e.x. free Internet access).³

On the other hand, it is essential to stress that last ranking – World's Best Internet Banks in Latin America pointed out foreign bank – Citibank as the best Internet bank in almost every country in Latin America (the exception is Colombia – Bancolombia and Mexico - Banamex).⁴ It has more than 87% penetration rate among its corporate/institutional clients. What is surprising, nowadays there is no pure e-bank in Latin America. In 1997 there was created one – Patagon.com, but in 2000 it was sold to Spanish bank. It was leading Internet bank in the region offering e-banking services, wide range of products (insurances, loans, stock trading etc.) and access to financial information.

As Latin America is still under-banked region (low financial services penetration rate), there is a great opportunity for Internet banking growth.

General reasons for using Internet banking by banks and by customers

Generally majority of banks use Internet banking because of three things: customer focus, reduction of costs and expansion into the market (look table 1).

For banks: Mainly banks become to be recognized as modern institutions, because of using advanced technology. This gives them opportunity to build good brand image. Other benefit is profits maximalization gained from implementing e-services (thanks to decrease of coast of transactions).

For customers: The clients use Internet banking mainly because is very convenient for them and give them possibility to access all services 24 hours. They can save time and money by using faster and easier bank

Table 1. Factors connected with using Internet banking by banks

Client focus	Cost reduction	Market expansion
- customer satisfaction increase - customer retention increase - build customer relationship and receive customer reclamation	- lower costs of transactions thanks to widespread Internet access and reducing brick and mortar branches	- taking advantage of cross-selling effects thanks to cooperation with other institutions (software or telecom) - benefits from modern image

Source: Hazell, P & Raphael Z., (2001).

3. M. I.Cepeda, M. Fernandes, A. C. Waslander, Brazil's head start in on-line banking, The McKinsey Quarterly 2001, Number 2: On-line tactics, p. 7.

4. Global finance, – World's Best Internet Banks in Latin America 2010, www.gfmag.com, 03.08.2010.

services through Internet. The authors point out the following benefits: Gurau (2002).

- reduced costs of using banking services
- convenience (availability of e-services at any time from any place with Internet access),
- fast and continues access to bank services,
- better management of customer funds, thanks to constant access to them through Internet.

Internet usage development in Latin America

Internet use in Latin grew very fast in 90's, which exceeded all of expectations. Its use increased more than 100% from 1997 till 1999 (5.3 million users, 1.5% of total population). It keeps on growing nowadays, which can be proved by total number of users

in 2009 – almost 183 millions users. Nevertheless, it represents 32.1% of total population, which is not a lot in comparison to North America - 73.9% or Europe - 50.1% (see table 2). The Internet market penetration in Latin America can be assessed by analyzing below indicators: Internet users, possession of personal computers and broadband Internet subscribers.

In terms of computer possession, just two countries from Latin America have more than 20 computers per 100 population (Brazil and Chile). The lowest indicator is for Colombia (7.60), Panama (4.60) and Bolivia (2.40). The difference between first 20 countries in the rank is significant, as all of them have more than 55 computers per 100 persons (Canada – 94.60, United States – 97.70, Singapore – 76.90, Germany – 65.30, Japan – 57.40). Sala-i-Martin (2009)⁵

Table 2. Estimated Internet users per 100 population 2008

Rank	Internet users (hard data)	Estimated Internet users per 100 population 2008
44	Uruguay	40,0
46	Colombia	36,6
47	Brazil	35,2
53	Chile	32,5
60	Argentina	28,1
64	Venezuela	25,5
65	Perú	25,3
70	Panamá	22,9
73	México	21,6
90	Bolivia	10,5
93	Ecuador	9,70
97	Paraguay	8,70

Source: X. Sala-i-Martin

5. X. Sala-i-Martin, The Global Competitiveness Report 2009-2010, World, Economic Forum, Geneva, 2009, pp. 446.

Table 3. Number of personal computers per 100 population | 2007

Rank	Personal computers (hard data)	Number of personal computers per 100 population 2007
35	Brazil	29,2
37	Chile	26,0
52	Paraguay	14,4
54	Mexico	13,8
58	Uruguay	13,0
59	Ecuador	12,7
60	Peru	10,0
64	Venezuela	9,30
65	Argentina	9,00
70	Colombia	7,60
86	Panama	4,60
90	Bolivia	2,40

Source: X. Sala-i-Martin (2009)

Table 4. Total fixed broadband Internet subscribers per 100 population | 2008

Rank	Broadband Internet subscribers (hard data)	Total fixed broadband Internet subscribers per 100 population 2008
46	Uruguay	8,6
47	Chile	8,5
48	Argentina	8,0
50	México	7,1
54	Brazil	5,2
61	Colombia	4,1
62	Venezuela	3,9
76	Paraguay	1,5
93	Bolivia	0,4

Source: X. Sala-i-Martin (2009)

The indicator of broadband Internet subscribers shows that the highest positions belong to Uruguay (8.6), Chile (8.5) and Argentina (8.0). The highest use of broadband Internet is in Sweden, Denmark, Netherlands and Norway (more than 33 per 100 people). It is said that high possession of personal computers and the number of broadband Internet subscribers are factors that have the biggest influence on the use of e-banking. As we can

see the analyzed indicators are still far away from leading countries indicators. It means that there is still big potential market to be developed in area of e-services.

The above table represents Internet use growth in Latin America (2000 – 2009). There is 569 millions habitants and 32.1% of them use Internet (5% increase since 2008).

We can see that the largest population of Internet users is in Brazil, Mexico,

Table 5. Internet users and its growth from 2000-2009 in Latin America

COUNTRIES	Population (Est. 2009)	Internet Users	% Population	User Growth (2000-2009)	% Users
Argentina	40.913.584	20.000.000	48,9 %	700,0 %	10,9 %
Bolivia	9.775.246	1.050.000	10,7 %	775,0 %	0,6 %
Brazil	198.739.269	72.027.700	36,2 %	1.340,6 %	39,4 %
Chile	16.601.707	8.369.036	50,4 %	376,2 %	4,6 %
Colombia	43.677.372	20.788.818	47,6 %	2.267,7 %	11,4 %
Costa Rica	4.253.877	1.500.000	35,3 %	500,0 %	0,8 %
Cuba	11.451.652	1.450.000	12,7 %	2.316,7 %	0,8 %
Dominican Republic	9.650.054	3.000.000	31,1 %	5.354,5 %	1,6 %
Ecuador	14.573.101	1.840.678	12,6 %	922,6 %	1,0 %
El Salvador	7.185.218	975.000	13,6 %	2.337,5 %	0,5 %
Guatemala	13.276.517	1.960.000	14,8 %	2.915,4 %	1,1 %
Honduras	7.833.696	958.500	12,2 %	2.296,3 %	0,5 %
Mexico	111.211.789	27.600.000	24,8 %	917,5 %	15,1 %
Nicaragua	5.891.199	600.000	10,2 %	1.100,0 %	0,3 %
Panama	3.360.474	934.500	27,8 %	1.976,7 %	0,5 %
Paraguay	6.995.655	894.200	12,8 %	4.371,0 %	0,5 %
Peru	29.546.963	7.636.400	25,8 %	205,5 %	4,2 %
Puerto Rico	3.966.213	1.000.000	25,2 %	400,0 %	0,5 %
Uruguay	3.494.382	1.340.000	38,3 %	262,2 %	0,7 %
Venezuela	26.814.843	8.846.535	33,0 %	831,2 %	4,8 %
TOTAL	569.212.811	182.771.367	32,1 %	927,2 %	100,0 %

Source: Internet World Stats (2010)

Colombia, Venezuela and Chile. However, in terms of Internet penetration the leaders are Chile, Argentina and Colombia (more than 40%). However the average Internet penetration is 32,1% what means that almost 68% of population doesn't use Internet.

On the other hand there is dynamic growth of use of Internet (almost 928% during last 9 years).

As Brazil, Mexico, Colombia and Argentina have the biggest numbers of

people among other countries in Latin America they have also the top number of Internet users. In the Latin America there are **204.7** millions of Internet users, which put it on fourth position in the world after Asia (825,1), Europe (475,1) and North America (266,2).

However, while Brazil has Latin America's largest population of Internet users, as the chart below shows, it is far from being the regional leader in Internet penetration. The highest Internet penetration rates belong to

Chile (50,4%), Argentina (48,9%) and Colombia (47,6%).

Taking into consideration number of Internet users in Latin America and Europe, the percentage of users in Latin America is 10.3% and 24,1% in Europe (in comparison to the rest of the world). It shows that Internet use is still in development phase in Latin America. However this process goes rapidly, as we can see from Internet users growth from 2000 till 2009, that was more than 927%.

Conclusions from analyzed data

- Low Internet penetration in America Latina in comparison with developed countries,
- The highest percentage of Internet users per 100 habitants in LA are

in Chile (50.4), Argentina (48.9) and Colombia (47.6). However it is just a small percentage looking on numbers showed in 5 other developed countries (US – 77.3, Japan – 78.2 or Germany – 79.1)

- Just Brazil is the country from the whole Latin America that is listed in top 20 countries with highest number of Internet users.

Profile of Internet users and their habits in Latin America

Generally typical Internet user in Latin America is young person (less than 24 years old), majority are males, familiar with technology. They use Internet for 3 main things: communication (e-mail, msn, blogs, etc.), for entertainment and for research. They use Internet

Table 6. Comparison between 4 representative countries from Latin America with 4 developed countries in terms of Internet and PIB per capita

	Brazil	Mexico	Colombia	Argentina	Chile
Internet users (millions)	75,94	27,60	20,78	20,00	8,37
Population (millions)	201,10	111,21	43,68	40,92	16,60
% Population	37.8	24.8	47.6	48.9	50.4
PC per 100 habitants *	29.2	13.8	7.60	9.00	26.0
PIB (\$ per capita)	10,427	13,500	9,200	14,559	14,331

Source: Internet World Stats (2010)

	China	United States	Japan	India	Germany
Internet users (millions)	420	239,89	99,14	81	65,12
Population (millions)	1,330,141,295	310,23	126,81	1,173,108,018	82,28
% Population	31.6	77.3	78.2	6.9	79.1
PC per 100 habitants *	76.0	79.9	57.4	3.2	65.3
PIB (\$ per capita)**	6,600	46,436	32,443	3,248	34,100

Source: Internet World Stats (2010). * X. Sala-i-Martin (2009). ** World Bank (2009)

mainly at home (it is increasing), however Internet coffee shops still play important role as the point of Internet access (negative signal).

There was significant increase in electronic transactions realized through Internet. Not only connected with e-commerce, but also with banking and electronic government. Most of the Internet users consider Internet as ideal mean of communication for receive better products and services information.

Nowadays, we can see clearly socio-economical level of life of people through access to Internet. The majority of users are wealthy people. Generally they use Internet connection from their homes or works, in detriment

to Internet cafes use. In fact, many users have demographic profiles that resemble those of the countries most developed.⁶

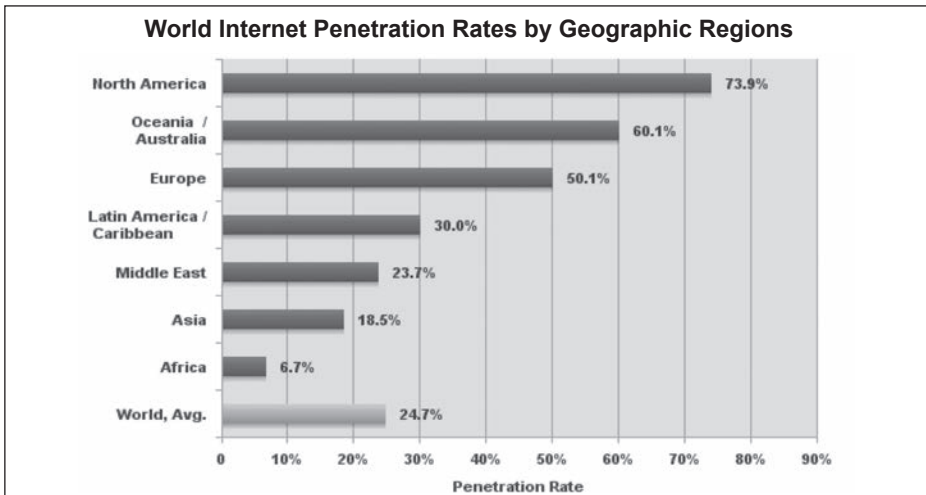
To sum up, we can notice that they **are strong disparities in Internet use** in Latin America which is barrier in developing e-banking services in Latin America.

Factors influencing Internet penetration in Latin America

a) Factors influencing Internet banking adoption

The authors looked for the factors influencing adoption of Internet banking basing their researches on the theory of planned behavior. Ajzen(1985) and the diffusion of innovations theory,

Figure 1. Internet penetration in the world



Source: Internet World Stats (2010)

6. Resumen de la industria de nombres de dominio, Vol. 2, Marzo de 2005, eMarketer, Latin America Online, Enero de 2004, p.2. www.verisign.com, 04.08.2010.

Rogers(1983). The results were surprising, because they showed that the main impact have behavioral factors. It was thought that the biggest impact would have social influence. It was discovered that the main factors influencing decision to adopt Internet banking services are: compatibility, trialability and risk connected with using Internet. There is also important influence of government (supporting e-commerce) and confidence in use Internet services.⁷

The findings of research were following:

- a) People are more eager to start using Internet banking when using it is compatible with their values about living and working. (compatibility)
- b) Customers will be more interested in adopting e-banking service if they already have experience with Internet. Thus they are more confident in using it.(trialability)
- c) The biggest obstacle in adoption to Internet banking is risk of losing security and privacy while using it.⁸ The significant influence on intentions to adopt new innovations in banking has government. By supporting development of e-commerce and new technologies it gives credibility in using it and makes people more likely to adopt

it. The best example of great impact of government represents Singapore. The proactive role of government in supporting development of Internet and e-services led to high Internet penetration. Nowadays, the government has active role in developing the scope of Internet services.⁹

Summarizing, it has to be stressed that adoption of Internet banking services depend on attitudinal and perceived behavioral control factors.

This research gives also important clues for banks. They should pay attention to raise the awareness of people about Internet banking, its advantages and risks. There should be implemented special campaigns with direct signal to potential customers. The aim of this should be to increase confidence in using banking services through Internet.¹⁰

Factors influencing Internet banking in Latin America

C.G. Leroux, H. Zo, J.J. Rho discovered in their research that there are 3 factors improving Internet penetration in Latin America. The factors are following: economic (GDP per capita), policy (availability of e-government services),

7. Tan M., Teo T. Factors Influencing the Adoption of Internet Banking, Journal of Association for International Systems, Volume 1, July 2000, pp. 1.

8. Bhimani, A., Securing the Commercial Internet, Communications of the ACM (39:6), 1996, pp. 29-35.

9. A. Wats, Next wave in Internet Banking, Finacle Infosys, Bangalore, 2009, pp. 2, <http://www.infosys.com>, 14.07.2010.

10. Tan M., Thompson S. H. Teo, Journal of Association for International Systems, Volume 1, July 2000, pp. 31-33.

and infrastructural (International Internet bandwidth.

Findings:

1. Correlation between mobile phone and Internet adoption. The research showed that use of mobile phones in Latin America is developed much more than use of Internet (low adoption rate). Therefore this means that using mobiles doesn't speed up adoption of using Internet. Especially that mobile technology here is still in stadium of development.

2. Correlation between GDP per Capita and Internet penetration.

The conducted analysis revealed that countries with the higher GDP per capita have the higher Internet adoption (like Argentina, Chile, Uruguay or Mexico).

3. Correlation between government and adoption of Internet. Government is able to promote adoption of Internet use. First by implementing e-government services, which will result in bigger Internet penetration.

4. Correlation between international bandwidth and Internet penetration. The countries that have better Internet infrastructure have greater Internet penetration rate.¹¹

This research showed that there is necessary to pay attention to mentioned

factors, in order to increase Internet adoption in Latin America. However, it is long term action of government to make Internet use more common and better known among people.

Generally banks say that their Internet services customers are people, who are familiar with technology, who use it (especially Internet) in everyday life and who want to achieve higher average balances.¹²

Internet use in Latin America as mirror of socio-economical conditions in the region

Besides analyzing the numbers showing Internet adaptation in Latin America, there have to be taken into consideration the social implications of Internet growth in this region. R. Gomez compares Internet in Latin America to a hall of mirrors that reflects disparities and inequity of the societies.¹³ It can be noticed so clearly in this region, because of huge cultural diversification and unequal access to resources and technology.

Generally we can say that the majority of Internet users in Latin America are people from upper-class, in middle age, living in cities (Internet use is still economic privilege). The greatest number of Internet users is in Brazil and Mexico, but these countries have

11. Leroux C., Zo J., Rho J., Factors Affecting Internet Adoption in Latin America, Proceedings of the 2008 Third International Conference on Convergence and Hybrid Information Technology, Volume 2, IEEE Computer Society Washington, USA, pp. 950.

12. Grimes D.R., Online banking , in E. Zask, The e-finance Report, McGraw-Hill, Princeton,2001, pp. 138.

13. Gomez R., Current History, Vol. 99 No. 634, New York, 2000, p.72.

the biggest population. On the other hand they implemented politics that promote development of information technologies and easier access to communication tools.

The other thing that can be seen through Internet use in Latin America is higher cost of Internet connections and equipment (e.x. computers) in comparison with Europe and North America. Because of this, there is lower access to e-services and it is less frequent. Other difference is younger Internet users in this region, who adopt faster new technologies and use Internet more often in public points (coffee shops).

Another thing that can be noticed is a little support from governments to develop new information economy in Latin America. Moreover there is still lack of political transparency and efficiency in all countries, which makes much more difficult to implement politics supporting development of e-services.

Continues Internet growth use can be used as important tool for social development in Latin America (by enhancing social equity). It will increase exchange of information, knowledge about e-services, contribute to social and economical development. Nevertheless it can not be achieved without proper support

from government in terms of legislation, telecommunication and security. In the majority of countries such legislations are still not put into the life. Increasing number of Internet users is also connected with supportive policies increasing access to Internet among societies.¹⁴

The future of Internet banking in Latin America

The future of banking in Internet lies in young generation. They are the main part of Internet technology users and have more confidence in using e-services. E. Huérfano believes that e-banking is the future for Latin America in the next 10 years. This assumption is based on the fact that now majority of Internet users are between 10 and 20 years old (70%). Therefore they are target group for Internet and Mobile banking in future, when they will be able to pay for such services. However, nowadays there is still low access to banking services. For example, in Mexico just 25% of its population uses banking service.¹⁵

On the other hand there is low Internet penetration use, low computer penetration and poor GDP per capita. There are significant indicators that have to be enhanced to boost e-services development. Other issues

14. Gomez R., Current History, as cited, p.72.

15. E. Huérfano, Banca electrónica el futuro, El economista, 30.03.2010, www.economista.com.mx, 09.07.2010.

that should be change are following obstacles:

- limited access to Internet among poor stratum of society,
- give access to people from down classes and move them from making inquiries to make transactions,
- lack of legacies supporting development of e-services,
- lack of laws and regulations to stabilize and secure online banking.

The biggest challenge is that developing a successful e-banking initiative for poorer people causes managing a host of inter-related issues, technology, pricing, financial literacy, functionality, partnerships, delivery channels, laws and regulations.

Growth of online banking can bring a lot of benefits, both for banks as well as for customers. It could be achieved by taking challenges offered by Latin American region (fast growth of consumer market, rising middle class becoming more familiar in using Internet, modernized telecommunications systems).¹⁶ Latin America seems to be interesting market for Internet banking services, the same as it became for mobile banking.

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