

# Boosting Small and Medium Enterprises Performance in Nigeria through Mobile Commerce

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## Abstract

The evolution of Information and Communication Technology (ICT) has brought about various changes and advancement in the world of business. Currently mobile phones can do lot more than just making and receiving calls. They are now used to further enhance business activities such as buying and selling, banking, marketing and much more. This paper examined the effect of m-commerce on SMEs in Nigeria and how its performance can be boosted. Ordinary least square regression was employed to measure the extent to which the small and medium enterprises were influenced. The results revealed that small and medium enterprises in Nigeria have not sufficiently adopted m-commerce in doing business. In order to achieve the cashless economy campaign by the Central Bank of Nigeria (CBN), adopting m-commerce for small and medium enterprises is inevitable. The study recommends that Nigerian microfinance banks should develop mobile site and provide banking services to small and medium enterprises since they are directly involved with them.

**Keywords:** Mobile commerce (M-commerce), Small and Medium Enterprises (SMEs).

## 1. Introduction

Going back in time before the outburst of the internet, communication especially in a business context required the presence of both the seller and buyer. A lot of challenges were faced, distance, time, language barrier to name a few but with the introduction and adoption of Information and Communication Technology (ICT), these challenges was drastically reduced. The internet has created new boundaries for the growth of business and has extended to create wider outreach for institutions such as banks. This further extended to improved communications devices such as desktop computers, laptops, palmtops, etc. hence the era of e-commerce was born. Within a spread of two decades or more, there was phenomenal growth in e-commerce all around the world. It made significant impact in the world of business with companies popping up online on a regular basis. However, it evolved into a more wireless network and birthed what is known today as Mobile commerce (m-commerce<sup>3</sup>). The need for m-commerce was borne out of increase in mobile phones and Personal Digital Assistants (PDAs) that support wireless network have increased the need for m-commerce. In order to achieve an effective link between M-commerce and business, one needs to understand the ideas behind the relevance of mobile phones to business. One of the major characteristics that made m-commerce a major contender in the business world is its, accessibility. It gives consumers the flexibility to access goods/services regardless of location or time (Obe & Balogun 2007). Others include convenience, ubiquity/immediacy, real time, context awareness, personalisation (Boateng (2013), Obe & Balogun (2007), Coursaris and Hassanein (2001), Buse (2002)).

While m-commerce can be employed for various purposes (mobile banking, mobile reservation, mobile payment, mobile marketing etc), the question becomes “can small and medium enterprises performance be enhanced via m-commerce?”

According to Bodorick *et. al.* (2002) and Jagoda (2010) small and medium enterprises are the “engine of growth of world economy”. Small and medium enterprises are key factors in the creation of employment as well as maintaining macro-economic balance by owning a greater chunk of the gross domestic product (Kleindl, 2000, Walczuch et al., 2000 and Zerenler & Sahin (2013). Countries such as the US show that small and medium enterprises make up more than 50% of the gross domestic product (Offstein and Childers, 2008) and in Canada roughly 1.4 million small and medium enterprises exist (Riding and Orser, 2007). In the last few decades various literatures<sup>4</sup> have shown and highlighted the importance of small and medium enterprises in an economy (Nejadiran, Behravesh and Rasouli, 2011). Jagoda (2010) further highlighted that more than 80% of a country’s economic growth is as a result of small and medium enterprises whereas in some other countries it can go up to 90% (Scupola, 2003). In other for small and medium enterprises to survive in a highly competitive environment,

<sup>3</sup>“It refers to all business transactions that are conducted on the platform of mobile devices and wireless networks. UNCTAD (2002) presents m-Commerce as buying and selling of goods and services using wireless hand-held devices” (Ayo *et al* (2007, P.g 3), JIBC, Vol. 12, No. 2.

<sup>4</sup> Also see Evans and Wurster, (1997), MacGregor, (2004), Kleindl, 2000, p. 75; Walczuch *et al.*, (2000), Levy *et al.*, (1999)

the use of ICT is necessary to deepen the reach of products/services to the world. According to Hawkins & Prencipe (2000) and Zerenler & Sahin (2013), ICT plays a vital role in achieving growth and sustenance in today's world.

This paper looks at the effect of m-commerce on the performance of small and medium enterprises in Nigeria and how it can be enhanced. It is structured into 5 sections, with section 2 providing an innate literature review, section 3 explained the methodology adopted, while 4 and 5 presented the discussion of result and conclusion respectively.

## 2. Literature Review

Improving access to financial services has been a major problem in developing countries and Nigeria in particular. Various organizations and researchers have all tried to proffer lasting solutions to the problem. However according to Ondiege (2010, pg 1) "*Today, an estimated 2.7 billion people in developing countries have no access to financial service, while a billion people<sup>5</sup> in Africa, Latin America and Asia are currently without bank accounts*". This makes solving the problem of access to credit a very difficult task ahead. On the other hand, of the 1 billion without bank accounts, Ondiege (2012), Dovi (2008) explained that these unbanked have mobile phones with a forecast increase of 1.7 billion by 2012. This void in financial services is one of the main drives of m-commerce. Helping to close this gap with the use of technology such as mobile phones will help ease the process of financial access to people and most importantly SMEs.

The European Union (2003) defined SMEs as "*enterprises which have at most 250 employees and an annual turnover not exceeding 50 million Euros. Further there is the distinction of small enterprises — they have fewer than 50 staff members and less than 10 million Euros of turnover — and micro-enterprises (less than 10 persons and 2 million Euros of turnover)*" (Decker et al 2006). The Central Bank of Nigeria (CBN) defined SME as "*any enterprise that has asset base of N5million- N500million and labour of 11-30*" whereas Audretsch, (1999) defined it as any business with less than 500 employees on their payroll. A more qualitative definition will be based on the SMEs market position, legal form, structure and economic impact (Decker et al (2006), Marwede, (1983).

Despite the lack of unified SME definition, the fact that they play a role in the economic and social impact of an economy cannot be disputed. A paper presented by Oyelaran-Oyeyinka (2012) at the FSS 2020 International Conference "SME: Issues, Challenges and Prospects" highlights that 96% of Nigerian business are SMEs as opposed to 53% and 65% in USA and Europe respectively. This evidently rolls out into the economy by providing, cash, employment etc. Specific characteristics are inherent of SMEs, one of which is financial constraints. Despite been able to provide employment, they lack the financial muscle to compete with the big organizations (Almeida (1999), Acz (1999). However, they are linked with better productivity as opposed to larger organizations (Decker et al, 2006).

Coursaris & Hassanein (2002), 724 solutions (2000) and Tiwari & Buse (2007) are of the opinion that m-commerce is an annex of e-commerce as they both have similar business underpinning. They went further to state that m-commerce provides an easier method to tackle the ever growing customer needs. The underlying point amongst scholars<sup>6</sup> is that m-commerce is a global phenomenon as nations are linked and brought closer. Various definitions<sup>7</sup> abound for M-commerce. Tiwari & Buse (2007,pg30) defines M-commerce "*Mobile Commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device*".

Over time there has been an increase in revenue generated from m-commerce. United Kingdom and France have been estimated to have generated €212 million and €127 million respectively in 2003 alone (Tiwari & Buse (2007), BITKOM (2004). Conversely they cited surging increase in mobile phone penetration, lower cost of mobile phones thereby cutting out mobile phones as luxury but as necessity, increased interest of modern ICT as well as the speed of data transmission in mobile phones as the major reasons for such development.

Ayo et. al, (2004) went further to highlight that issues such as inefficient labor, geographical fragmentations are avoided as a result of m-commerce. Obe & Balogun (2007) states that Nigeria has one of the highest internet and mobile users in Africa. They draw attention to the fact that in 2004 there were already 30 million internet users and 65 million mobile phone users. Furthermore, according to the publications of Nigerian Communication Commission (NCC) and Internet world statistics in 2012, internet users rose to 48.5 million users, being 28.4% of the entire population and mobile users (phone usage) rose to 113.5 million users. This made Nigeria the largest internet users in Africa and 11<sup>th</sup> largest internet users in the world. Going further statistics presented by

<sup>5</sup> This paper was done in 2010, the statistics might have changed.

<sup>6</sup> Ayo et al 2004, Elsevier (2003), Bames, (2002)

<sup>7</sup> For more definitions see Tiwari & Buse 2007, Veijalainen et al., 2003,

Terragon Insights (2013) showed that users of mobile phones are far more than personal computer users by ratio of 60:30.

Low cost, distance and increased connectivity are listed as major advantages of using m-commerce (Paavilainen, (2002), Jahanshahi (2011). (Offstein and Childers (2008) state that financially constrained SMEs can use m-commerce as less expensive medium of reaching wider consumers. Additionally, improved efficiency (i.e. increased time of delivery), creates a triangle of easy communication and relationship between buyers and sellers when conducted via mobile phones (Boateng 2013).

Then again, the most challenging problems<sup>8</sup> facing m-commerce is the issue of security, fraud, confidentiality, trust and Nigeria is at the deep end (Ayo et al 2004). Expanding on this, despite the increased penetration of m-commerce by organizations in Nigeria, banks are still very skeptical due to the security risk involved. This automatically affects SMEs as benefactors of m-commerce. On the consumers end, payment methods such as credit cards where personal information (PIN) is needed still prove a major threat to m-commerce. However, given the mobile money option, transfers and payments could be made without threat of PIN theft. Terragon Insights (2013) further showed that 58% of the population cites fraud and trust as their major reason for not doing business online. Contrary to the fact that m-commerce gives SMEs leverage to compete with bigger business, it also gives larger co-operations the power to enter markets of SMEs at no additional cost (Offstein and Childers, (2008), Jagoda (2010).

Looking at mobile banking, which according to *Tiwari & Buse, (2007 pg 73)* “refers to provision and availment of banking- and financial services with the help of mobile telecommunication devices, the scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customised information”. Services which include bank statements, balance inquires, credit card information, cheque status etc were designed to provide unlimited access to a customer. This information ranges from important bank information to security details or market research. Nigerian banks perform these services, but the base question is “can these banks/financial institutions do more to boost the performance of SMEs”? Empirical research carried out by Chiemeke et al (2006), Agboola (2006) on the level of adoption of m-banking showed poor adoption by Nigerian banks due to insecurity, inadequate operational facilities, ineffectiveness of telecommunications services, epileptic supply of power, high cost, fear of fraudulent practices and lack of facilities (Ayo et al 2007).

### 3. Methodology

The study employed ordinary least square regression method of analysis. Performance of small and medium enterprises was measured by survival ( $S_{SME}$ ), asset size ( $AS_{SME}$ ) and access to credit ( $BL_{SME}$ ).  $S_{SME}$  was measured by the number of registered small businesses for the period under study (1996-2010),  $AS_{SME}$  was measured by startup capital of small businesses, and  $BL_{SME}$  is a proxy for small and medium enterprise access to credit. This was specified to help examine the influence of the m-commerce on the performance of small and medium enterprises in Nigeria.

Data was sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, United Nation (UN) Statistical Division and Corporate Affairs Commission (CAC), Nigeria. Specifically, Mobile phone penetration ( $Mpen$ ) and Internet Penetration ( $Ipen$ ) were sourced from United Nation Statistical Division, Survival ( $S_{SME}$ ) and Asset Size ( $AS_{SME}$ ) were sourced from Corporate Affairs Commission, Nigeria, while the rest were sourced from CBN Statistical Bulletin.

We hypothesize that;

- i. M-Commerce has not significantly affected the survival of small and medium enterprises in Nigeria.
- ii. M-Commerce has not significantly affected the asset size of small and medium enterprises in Nigeria.
- iii. M-Commerce has not significantly affected small and medium enterprises access to credit in Nigeria.

This can be estimated using the models:

- i.  $S_{SME} = f(Mpen, Ipen, BL_{SME})$
- ii.  $AS_{SME} = f(Mpen, Ipen, BL_{SME})$
- iii.  $BL_{SME} = f(Mpen, Ipen, Lr)$

Therefore;

$$S_{SME} = B_0 + B_1 Mpen + B_2 Ipen + B_3 BL_{SME} + \mu \dots \dots \dots \quad (1)$$

$$AS_{SME} = B_0 + B_1 Mpen + B_2 Ipen + B_3 BL_{SME} + \mu \dots \dots \dots \quad (2)$$

$$BL_{SME} = B_0 + B_1 Mpen + B_2 Ipen + B_3 Lr + \mu \dots \dots \dots \quad (3)$$

<sup>8</sup> For more details on disadvantages of m-commerce see (Ayo et al 2007), Buse and Tieari (2006), Eriksson, Hultman and Naldi, 2008).

Where,

$S_{SME}$	= Survival of SMEs
$AS_{SME}$	= Asset Size of SMEs
$BL_{SME}$	= Bank Lending to SMEs
$M_{pen}$	= Mobile phone penetration/usage
$I_{pen}$	= Internet penetration/usage
$L_r$	= Deposit money bank Lending rate
$\mu$	= error term
$B_0, B_1, B_2\dots$	= denotes unknown parameters to be estimated.

#### 4. Discussion of Results

##### 4.1 Unit Root Test

The Phillips-Perron test for unit root and stationarity conducted at level, 1<sup>st</sup> and 2<sup>nd</sup> difference showed that observed t-statistics are all greater than the critical values. Therefore, we conclude that there is no unit root problem with the data.

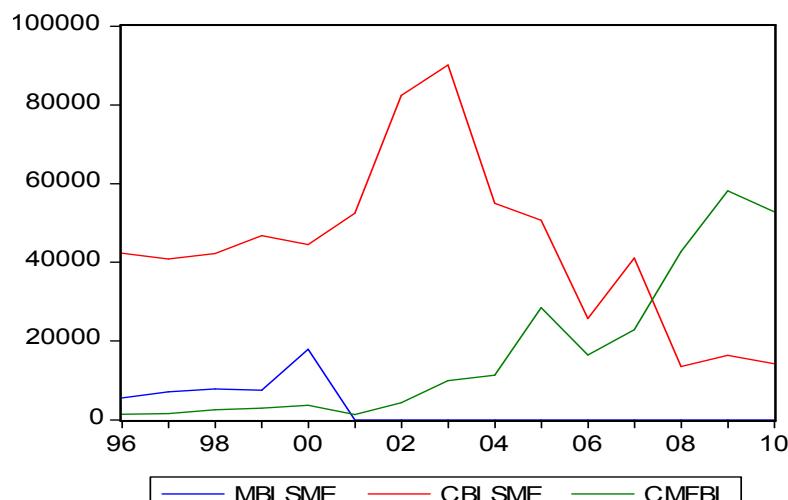
##### 4.2 Empirical Result

The test carried out at 5% level of significance showed that internet penetration impact significantly and positively on the survival and asset size of small and medium enterprises in Nigeria. Mobile penetration and Bank lending to small and medium enterprises had negative and statistically insignificant effect on both survival and asset size of small and medium enterprises in Nigeria. The result showed that the coefficient of mobile penetration and bank lending to small and medium enterprises contributed an insignificant -13.8% and -6% respectively to the survival of small and medium enterprises in Nigeria and -16.1% and 9% respectively to asset size of small and medium enterprises in Nigeria.

Banks are primary source of credit for small and medium enterprises (Iloh et. al 2013). Mobile penetration did not reveal a direct relationship with the survival and asset size of small and medium enterprises in Nigeria. However, given that small and medium enterprises depend on loans for survival and performance, accessing credit through mobile banking will greatly influence the survival and asset size of small and medium enterprises. Iloh et. al (2013) opined that while banks consolidated in Nigeria and became mega, they focused on bigger customers to the neglect of smaller ones. This explains the insignificance of commercial bank lending to small and medium enterprises in Nigeria. The adjusted R<sup>2</sup> of 67% and 88% for survival and asset size of small and medium enterprises respectively implies that it is a good fit.

Lending rate of deposit money banks significantly impacted on small and medium enterprises access to credit. The result further revealed a 98.6% positive contribution of lending rate to bank lending to small and medium enterprises. While the contribution is significant, the direction of relationship failed the a priori expectation. An increase in lending rate should cause small and medium enterprises to turn to other sources of funding as opined by Graig and Hardec, (2004). The use of mobile phones to access credit from banks (mobile banking) is quite insignificant and contributed less than 10% to bank lending to small and medium enterprises in Nigeria. Variations in bank lending to small and medium enterprises cannot be attributed to variations in the independent variables as revealed by an adjusted R<sup>2</sup> of 25%. Other factors such as the consolidation of commercial banks and poor deposits and capital of micro finance banks impacted on bank lending greatly.

Figure 1. Graphic trend of Bank lending to Small and Medium Enterprises.



A close look at the graphic trend of various bank lending to SMEs in Nigeria showed horizontal and steady movement in lending to small and medium enterprises until year 2000. In the same year saw the consolidation of commercial and merchant banking functions into a universal bank. This and many other monetary policies over a period of time till 2004 resulted in the increase of bank lending to small and medium enterprises. While commercial bank lending to small and medium scale enterprises dropped drastically from a peak of over -N-90billion in 2004 to less than -N-15billion in 2010, community/microfinance bank lending, which generally is to small and medium enterprises, rose from close to -N-10 billion in 2003 to over -N-52billion in 2010.

#### 4.3 Test of Hypothesis:

H<sub>01</sub>: M-Commerce has not significantly affected the survival of small and medium enterprises in Nigeria.  
H<sub>02</sub>: M-Commerce has not significantly affected the asset size of small and medium enterprises in Nigeria.  
H<sub>03</sub>: M-Commerce has not significantly affected small and medium enterprises access to credit in Nigeria.  
The t-test showed that the coefficient of mobile penetration did not significantly affect small and medium enterprises survival, asset size and access to credit. While internet usage, which encompasses the conventional internet usage via personal computers and mobile internet usage, impacted significantly on survival and asset size of small and medium enterprises, its effect was insignificant on bank lending to small and medium enterprises in Nigeria. Therefore, the null hypotheses are accepted and the researchers conclude that mobile commerce (m-commerce) has not significantly affected the performance of small and medium enterprises in Nigeria.

### 5. Conclusion and Recommendation

Adopting m-commerce by small and medium enterprises is a sure way to making the cashless economy campaign by the Central Bank of Nigeria achievable. Mobile banking and mobile money has made it possible for small and medium enterprises in Nigeria to perform major financial functions without having to carry cash, cheque, debit or credit cards. Money can be transferred from bank accounts, bills paid, purchases and sales made and even salary paid from any part of the world through mobile phones. Given that a good number of people in developing countries are rural dwellers who lack access to finance, "the development of mobile money (m-Money) will facilitate access to finance through the mobile platform, which has the largest rate of adoption all over the world (two-thirds of the world population has access) among other information and communication technology (ICT) facilities" (Ayo et. al, 2011). The results showed that small and medium enterprises in Nigeria have not sufficiently adopted m-commerce in doing business. Bankole et. al (2011) suggest that cultural values could be responsible for the level of adoption of mobile banking in Nigeria. Since small and medium enterprises depend on loan for survival and performance, full adoption of mobile banking is needed to boost its performance in Nigeria. The study is limited by available data as survival of small and medium enterprises is captured by number of registered businesses in Nigeria, which operate under -N-5million annually, for the period of study and asset size was captured by startup share capital of registered companies less than -N-5million. Time series data for mobile internet usage in Nigeria was unavailable. Therefore internet penetration/usage, which generally is used for electronic commerce (but also encompasses mobile internet usage), was adopted for the study. Profitability of small and medium enterprises in Nigeria, a measure of performance, was not included for unavailability of data.

The researchers recommend that there should be active campaign for m-commerce, mobile banking and mobile money by telecom companies, and banks, particularly microfinance banks, since they are directly involved with small and medium enterprises. Secondly, microfinance banks should develop mobile sites and provide banking services to small and medium enterprises, including access to credit. Lending is a banking function which can be done through mobile banking to customers known for good length of time. Small and medium enterprises could go on the bank's mobile site, fill out forms and submit their proposal/application for loan. The bank already armed with details of the customer, assesses and approves or disapproves the loan application. Furthermore, telecom companies in Nigeria should increasingly encourage small and medium enterprises to use mobile marketing by introducing special business packages that allows them to advertise and sell their products and services. Finally, government needs to capitalize on mobile penetration surge, make friendly policies and create a secure haven for both small and medium enterprises and mobile commerce support providers (i.e. telecom, banks etc).

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## Appendix

Table 1. Data used for analysis

years	SME Survival	SME Asset Size (-N-)	BL <sub>SME</sub> (-N-'million)	Mpen	Ipen	Lr
1996	17,264	5,314,493,140	49,298.10	14,000	9,947	20.86
1997	19,643	6,407,882,953	49,601.00	15,000	19,869	23.32
1998	19,393	6,880,742,000	52,588.30	20,000	29,768	21.34
1999	20,776	8,246,581,301	57,319.78	25,000	49,568	27.19
2000	23,550	9,821,962,165	66,108.70	30,000	79,260	21.55
2001	34,609	15,495,025,667	53,742.40	266,461	113,909	21.34
2002	26,920	12,661,331,179	86,679.30	1,569,050	416,063	30.19
2003	27,092	13,537,164,624	100,131.30	3,149,473	743,281	22.88
2004	19,896	11,758,162,999	66,335.00	9,147,209	1,754,284	20.82
2005	24,846	15,912,092,047	79,177.40	18,587,000	4,962,548	19.49
2006	29,959	20,415,209,001	42,163.90	32,322,202	7,948,195	18.70
2007	40,378	29,539,925,167	63,950.60	40,395,611	9,948,614	18.36
2008	60,203	48,810,563,446	56,265.26	62,988,492	23,895,584	18.70
2009	57,722	50,155,359,265	74,582.15	74,518,264	43,920,958	22.62
2010	58,617	52,913,600,011	67,127.00	87,297,789	45,039,710	22.51

Source: CBN Statistical Bulletin; UN Statistical Division, Corporate Affairs Commission

Table 2. Log of variables used for regression

Obs	LNAS <sub>SME</sub>	LNLB <sub>SME</sub>	LNPEN	LNLR	LNMPEN	LNS <sub>SME</sub>
1996	22.393703480	10.805640819	9.2050262771	3.0378334495	9.5468126086	9.7563786875
1997	22.580794780	10.811766273	9.8969160071	3.1493113614	9.6158054800	9.8854763197
1998	22.651992331	10.870248940	10.30118927	3.0605832458	9.9034875525	9.8726674552
1999	22.833064563	10.956401043	10.811100743	3.3028492586	10.126631103	9.9415537533
2000	23.007886752	11.099055635	11.280488866	3.0703758165	10.308952660	10.066881099
2001	23.463784884	10.891957540	11.643155163	3.0605832458	12.492983170	10.451869042
2002	23.261818396	11.369970379	12.938591970	3.4075107437	14.265980898	10.200624783
2003	23.328704675	11.514237603	13.518829448	3.1302631665	14.962745695	10.206993760
2004	23.187813559	11.102472940	14.377571354	3.0359140631	16.028959363	9.8982739854
2005	23.490345163	11.279446183	15.417429876	2.9699015135	16.737972969	10.120452052
2006	23.739545999	10.649319683	15.888455416	2.9285235238	17.291264920	10.307585059
2007	24.109008580	11.065866189	16.112943802	2.9101743851	17.514231698	10.606040361
2008	24.611212590	10.937832572	16.98920423	2.9285235238	17.958462601	11.005477463
2009	24.638391210	11.219656481	17.597902167	3.1188344706	18.126554807	10.963393662
2010	24.691926231	11.114341626	17.623055103	3.1139596549	18.284835694	10.978780035

Source: Author's computation (2013) using e-views 3.1

Table 3. Bank lending to small and medium enterprises

YEAR	MBL (SME) (-N-'million)	CBL (SME) (-N-'million)	CMFBL (-N-'million)
1996	5,595.80	42,302.1	1,400.20
1997	7,137.90	40,844.3	1,618.80
1998	7,800.80	42,260.7	2,526.80
1999	7,537.48	46,824.0	2,958.30
2000	17,899.80	44,542.3	3,666.60
2001	0.00	52,428.4	1,314.00
2002	0.00	82,368.4	4,310.90
2003	0.00	90,176.5	9,954.80
2004	0.00	54,981.2	11,353.80
2005	0.00	50,672.6	28,504.80
2006	0.00	25,713.7	16,450.20
2007	0.00	41,100.4	22,850.20
2008	0.00	13,512.2	42,753.06
2009	0.00	16,366.5	58,215.66
2010	0.00	14,259.50	52,867.50

Source: CBN Statistical Bulletin