

ECONOMIC CONTRIBUTION BY DIGITAL ECONOMY IN NEPAL

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ABSTRACT

Nepal is a small landlocked South Asian country located between two giant nations China and India. The estimated the total population of Nepal amounted to almost 30 million in 2017. Nepal has not been able to tap its growth potential due to prolonged political uncertainty. With the power of internet and smart phones, one can now connect with anyone, at anytime and anywhere. Technological innovation and broadband connectivity is considered as a major stimulus for economic growth. With the advancement in the technology, one of the latest technologies adopted by bank is the e-banking. Most of banks of Nepal are featuring electronic banking system. They offer e banking, phone banking and mobile banking system in Nepal. Tele-Banking facility was introduced in 1997 and Internet-Banking was first introduced in 2002 and SMS-Banking was launched by in 2004 but there is hot wave in India to adopt digital transaction for all economic activities, 97% economic activity is in pure CASH in Nepal. The purpose of the paper is to put light on the politics, economics and political economy of digital-economy reform in Nepal and will consider their stances on digital-policy reform and suggest various ways the costs and benefits of the growth of the digital economic model. All sectors of the economy have adopted ICT to enhance productivity, enlarge market reach and reduce operational costs.

KEYWORDS: Digital Economy, E-Banking, Payment, SAARC Country, Nepal

Nepal is a small landlocked South Asian country located between two giant nations China and India. It is estimated that in 2017, the total population of Nepal amounted to almost 30 million. Nepal has eight of the world's highest mountains and the Nepalese economy is dependent on international aids and foreign tourists. Despite having these enticing features, Nepal has not been able to tap its growth potential due to prolonged political uncertainty. Nepal is a low income country with a population growth of 1.1% in 2018. For a vibrant digital economy to flourish, digital innovation and supporting digital innovators is crucial. Nepal is considered to be one of the least developed countries in the world with low per capita income. Nepal adult literacy rate (15 yrs and above) 59.6 % in 2011 (Census, 2011), with almost 25% of the population living below the national poverty line, 50% of the population earning below ~\$3 per day, and a per capita income below international and regional standards, Nepal is considered among poorest nations in South Asia, trailing only Bangladesh. This is primarily due to socioeconomic conditions wherein almost 80% of Nepal's population lives in rural areas, have large families, very small landholdings and lack primary healthcare, education, safe drinking water, sanitation and other basic necessities. The mobile penetration in Nepal has grown exponentially in the last decade to reach 113% in 2017 from 21% in 2009. (ADB, 2014), (Singh, 2016).

Digitization platform has just begun in the Nepalese economy and it is a new subject to Nepalese citizens. Nepal Rastra Bank (NRB: Central Bank of Nepal) has been promoting digitization actively since last five years by installing machines, encouraging banks to bring in such products that promote digitization (NMM, 2016). The usage of ATMs, debit cards, credit cards, mobile banking, internet banking has increased tremendously (NRB, 2016). Government supported the same cause and announced Digital Nepal on April, 2018 supporting for "Digital Nepal: Social and Economic Framework for Prosperous Nepal, Happy Nepali" (ND, 2014). Mobile service now extends to 95% of the global population and mobile internet access is spreading fast (NT, 2015). Recognizing the value of mobile to society, many governments of South Asian Countries have set bold policies to cultivate the digital economy while ensuring the benefits of connectivity reach remote and underserved communities. Despite the size of its economy, Nepal has a relatively diversified financial services sector. As at July 2017, there are 28 commercial banks in Nepal with a paid up capital of NPR 8 billion, 40 development banks, and 32 finance companies. As one of the largest contributors to Nepal's economy, the financial services sector contributed 23% of GDP in FY2016. A key driver for the financial services sector is the high volume of remittances sent to Nepal by the thousands of Nepali people working abroad since the 1990s. Remittances in 1995 accounted for 1.3% of GDP, growing to an estimated

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US\$6.6 billion, equivalent to 31.3% of the country's GDP in 2016. Digitization refers to the transformations triggered by the massive adoption of digital technologies that generate, process and share and transfer information. South Asia remains the fastest growing region in the world and Nepal is bordering two of the world's fastest-growing economies India and China. Nepal has enjoyed incredible success in digital adoption as compared to its neighbors with mobile penetration exceeding 100% and Internet penetration reaching 60%. According to the NTA, there was an addition of 2.25 million new Internet users in 2017 alone, translating into approximately 250 new Internet users every hour (NTA, 2016). The growing popularity of social media is a crucial driver for Internet adoption in Nepal, coming second only to Bhutan in South Asia in social media penetration. As at January 2018, Nepal has nearly 9.3 million Facebook users and entertainment and video sharing are other popular use cases with more than 6.4 million registered users on YouTube. The Digital Nepal Framework is a blueprint that provides a roadmap to how digital initiatives can: Contribute to economic growth, find innovative ways to solve major challenges facing society in a shorter period with fewer resources and Identify opportunities for Nepal to participate in the global economy.

LITERATURE REVIEW

The impact of the internet on society continues to be far reaching at multiple levels. Currently, there are nearly 7.8 billion mobile subscribers, driving the global mobile penetration to 103%. 67% of total mobile subscribers are connected to mobile broadband, growing 15x faster than fixed broadband in 2017. The digital economy is the new productivity platform that some experts regard as the third industrial revolution. Digital revolution, also known as 'The Internet Economy' or Internet of Everything (IoE), is expected to generate new market growth opportunities, jobs and become the biggest business opportunity of mankind in the next 30 to 40 years. This paper addresses a gap in the literature on the global digital divide by providing a micro econometric analysis of the factors affecting computer and Internet use in the rural areas of developing countries, where the majority of the world's population still lives. E-commerce is transaction of buying and selling online and it helps connect buyers and

sellers directly or through various agents, ensuring global accessibility.

Denmark, Sweden, Finland, Germany and the Netherlands have the most advanced digital economies in the EU, 4G mobile networks cover on average 91% of the EU's population. 75% of European homes subscribe to fixed broadband and one third of all homes have at least 30 Mbps. Germany is a crucial market for the global internet economy; constituting the most internet users in Europe coupled with Europe's highest total purchasing power. With 68 million people (84% of the German population) online on a regular basis, Germany is responsible for around one quarter of all European B2C e-commerce turnovers. Digital change is in full swing. Mobile penetration is rapidly increasing throughout the globe. South Asian Association for Regional Cooperation (SAARC) region will have an estimated 1.3 billion active mobile subscribers by 2018, according to Dataxis, a global firm specialized in telecom, television and media business. Although in 2011 only about 9.0% percent of Nepal's population used the Internet but the total percentage of internet user as of 2017 is out 54%. This figure too increased in 2018. Nepal also performs very poorly in logistics performance where its ranks 124 out of 160 countries in World Bank's Logistics Performance Index Global Ranking 2016.

RESEARCH METHODOLOGY

The research is based on secondary data and only defined model econometric model. A quantitative analysis is done from selected data available from different agencies and sources. Data from multiple sources have been brought together to make a proper analyze and a conclusion is devised based on this.

Electronic Banking

The output equation links annual change in mobile penetration to mobile revenues, used as a proxy of the capital invested in a country in the same year. The econometric specification of the model is:

- Aggregate Production function:

$$GDP_{it} = a_1 Kit + a_2 Lit + a_3 MobPen_{it} + e_{it} \quad \dots\dots\dots 1$$
- Demand function:

$$MobPen_{it} = b_1 Rural_{it} + b_2 Mob_Price_{it} + b_3 GDPC_{it} + b_4 HHI_{it} + e_{it} \quad \dots\dots\dots 2$$

- Supply function:

$$\text{Mob_Rev}_{it} = c_1 \text{MobPr}_{it} + c_2 \text{GDPC}_{it} + c_3 \text{HHI}_{it} \dots 3$$
- Output function:

$$\Delta \text{Mob_Pen}_{it} = d_1 \text{Mob_Rev}_{it} + \epsilon_{\Delta it} \dots 4$$

In order to test the current economic impact of telecommunication technology, two models could be constructed and specify them for two cross-sectional samples of countries. There are some different forms of the electronic banking systems available in Nepal and SAARC countries: ATM, Debit/Credit Card, Electronic Fund Transfer System (EFTS), Retail Payment System (P2P, P2B, P2G, B2G), Internet Banking, Mobile Banking and Branchless Banking. All Nepalese commercial banks are offering internet banking services to their customers. As on July 2015, there are 3,96,362 internet banking users of commercial banks in Nepal. Commercial banks in Nepal are providing the service of utility payments, fund transfers and the generation of internet banking services.

Digital Connectivity For Consumers

The digital economy has the potential to radically change the social environment and economic activities of South Asia. Nepali youths and their love for internet are not unknown to us but we can see people busy on their phones

with cellular data on when getting into a public vehicle or walking through the streets, might be in some malls or even in the movie theatres. Not just youths these days but also children and elderly people are seen using the internet. MIS report from Nepal Telecom Authority (NTA) states that the internet penetration rate as of July, 2016 is nearly 63% in Nepal which is a large number considering Nepal being an underdeveloped country and secondly the literacy rate of Nepal according to CBS report, 2011 is 66%.

Digital Connectivity situation in Nepal has improved considerably over the last 5 years, with exponential increase in access to mobile services. Mobile Connection and Mobile Internet Penetration in Nepal have almost doubled in between 2012/17 with mobile penetration crossing 100%. The concept of a digital society centers on the interaction between government, business and citizens via digital technologies, accompanied by social and economic benefits around efficiency and productivity gains as well as the improved well-being and living standards of citizens. As per NTA (2018), 53.12% of the population (15.58 million) has access to broadband internet in Nepal and more than 8.7 million Nepalese are expected to be using Face book in Nepal (Dec 31, 2017). Nepal's mobile wallets are strategically linked to mobile banking initiatives. Initiatives underway, Fonepay/Esewa, Hello Paisa, and MNepal are available to the majority of mobile subscribers (minimum 96% of market). (Table 1)

Table 1: Est. growth in market size (%) between 2016-2021

	2012	2017
Mobile Penetration	60%	113%
Mobile Internet Penetration	21%	57%

	Greater Southeast Asia	U.S.	China
E-commerce	261%	23%	196%
Digital Entertainment	145%	n/a	54%
Online travel	90%	15%	172%

E-commerce, which is expected to grow by 261% between 2016 and 2021, is one of the region's most explosive sectors. Digital is driving connectivity in South Asian countries, particularly via mobile Internet. There is high participation in social networks, with India leading the

way with the highest number of Facebook users in the world (195 million in May 2016), Indonesia ranks 4th, with 78 million users. Facebook has been banned in China, though there are alternative social networks including the Renren network and WeChat.

E-Governance

Governments are typically one of the largest technology users in Nepal and are therefore able to promote adoption and industry growth by delivering public services over digital. The 2018 E-Government Development Index places Nepal in the 117th position among 193 countries. Government of Nepal has undertaken several steps in

digital direction, as a result of which Nepal's ranks on E-Government Development Index have improved from 165th in 2014 to 117th in 2018. Internet and mobile connectivity forms the backbone of economic growth and employment generation, and creates an enabling environment for socio-economic transformation by improving income levels, empowering underprivileged communities and bridging the digital divide. (Table 2) (Figure 1 & 2)

EGDI Rank	2008	2010	2012	2014	2016	2018
Nepal	150	153	164	165	135	117

Source: UN, 2018

45% of Nepali people are formally banked	Only half of bank account holders withdraw money from their accounts in the past year	15% of salaried employees receive wages through a bank account
9% of Nepali people own debit cards	1% of Nepali people own credits cards	16% Nepali people have made or received a digital payment

Source: World Bank, 2017

Table 2: Electronic banking in Nepalese Commercial banking industry

Particulars	2013	2014	2015	2016	2017
No. of branchless banking centre	205	504	503	812	1008
No. of mobile banking customer	452909	768424	997463	1604578	2438222
No. of Internet banking customer	286732	328434	396362	489835	766958
Total no. ATM	1239	1303	1483	1661	1874
No. of debit card holder	3193137	3641960	4146237	4142390	4694066
No. of credit card holder	38587	57898	43895	52014	68966
No. of prepaid card holder	57453	66204	69322	82797	101458

Source: Bank and Financial Institutions Regulation Department, NRB 2017

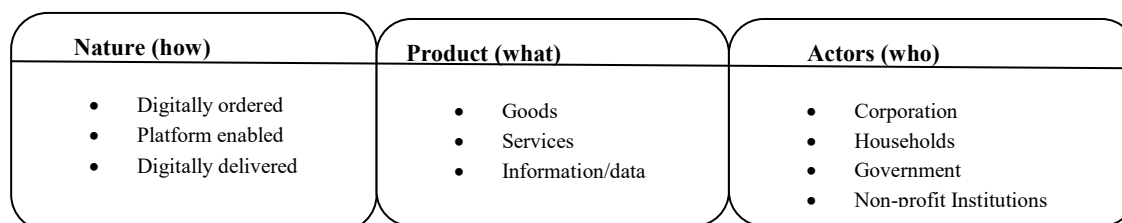


Figure 1: Three Dimensions of Digital Transactions

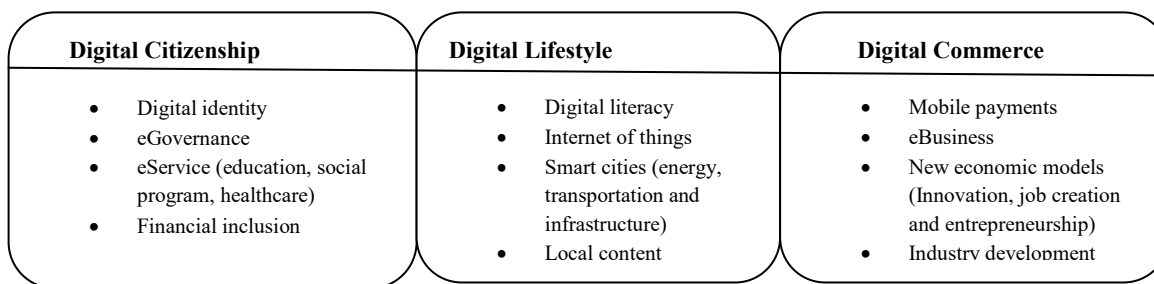


Figure 2: Three pillars of a digital society

Using digital currency in the form of mobile payments, e-payments etc. not only help uplift communities from poverty but also reduce government expenses on currency manufacturing and it minimizes illegal currency

use. The government can monitor nature of currency expenses which in turn will minimize illegal trade of currency in buying arms and drugs. (Figure 3) (Table 4)

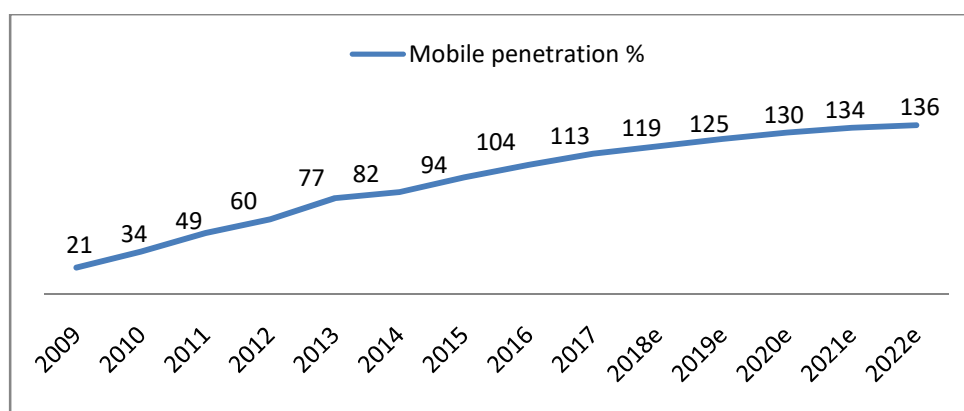


Figure 3: Internet penetration in Nepal (Source: Nepal Telecommunications Authority, 2017)

Table 4: Internet Penetration, China, India Nepal, 2025

75% Penetration in China	Every 1 in 2 Nepalese have access to Internet today against every 1 in 3 Indians.
79% Penetration in Nepal	
62% Penetration in India	95% of the total Internet users use 2G or 3G mobile data services today.

Source: Frost & Sullivan Analysis

RESULT AND DISCUSSION

Nepali People Are Embracing Social Media

Growing popularly of social media is key driver for adoption of internet in Nepal. Nepal is second only to

Bhutan in South Asia in social media penetration. In January 2018, Nepal had nearly 9.3 million Facebook users, "Entertainment and video sharing are other popular use cases with more than 6.4 million registered users you tube. (Figure 4)

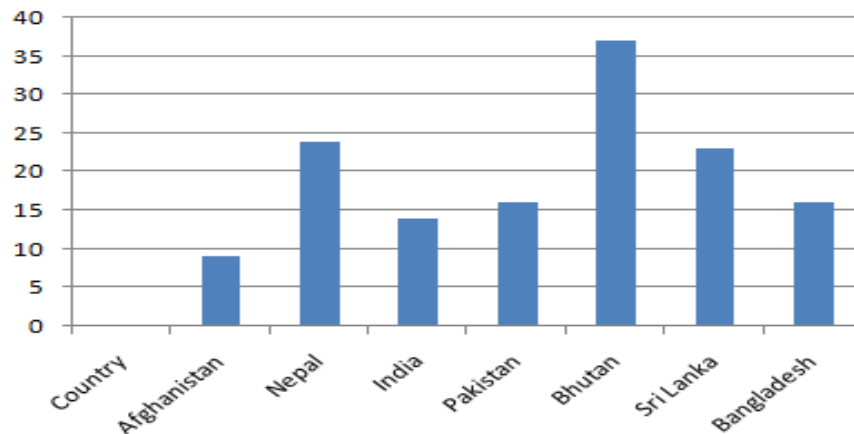


Figure 4: Active social media users (Jan, 2017) (Source: Hootsuite, 2017)

The rapid growth of social media users and increasing of internet penetration in Nepal has catalyzed the stereotypical concept of traditional marketing and created the emergence of digital marketing in the country. The global digital economy crossed an important milestone recently: the number of internet users in two countries China with just over 800 million users and India with 500 million users surpassed the aggregate number of internet users across 37 OECD countries combined. In both countries, users spend more time on the internet than the worldwide average of 5.9 hours per day. They also have room to grow; China has just fewer than 60% of its population online, while India with one of the lowest rates of internet penetration in the world has fewer than 25% of its population online. (OECD, 2016a)

Payment Service Providers

Payment Service Provider are those service providers providing the payment services through electronic means, carrying out domestic money transfer business,

utility bills payments, goods and services payment and also have direct relationship with customers. By World Bank's Global Findex Database 2017: (Table 6, 7)

- 93% of the school fees were paid on cash in the past year.
- 87% of the utility bills were paid on cash in the past year.
- Only 4% of the adult population received their wages into a financial institution account.
- Only 4% of the adult population paid utility bills via financial institutions in the past year.
- Only 3% of the adult population made school fee payment via financial institutions.
- Only 2% used internet to buy something online in the 2016.

Table 6: Global Totals of Remittance Receipts and Payments (Billions of U.S. Dollars)

	2009	2010	2011	2012	2013	2014	2015
Credit	397.3	424.2	472.6	496.1	525.4	555.9	550.8
Debit	303.3	302.9	340.6	356.3	390.4	400.5	386.0
Discrepancy	94.0	121.3	132.0	139.8	135.0	155.4	164.8

Source: IMF Balance of Payments Statistics

Table 7: Internet and facebook users in SAARC

Country	Internet users	% Penetration	Face book users	% Penetration
Afghanistan	5,700,905	15.7	3,200,000	8.8
Bangladesh	80,483,000	48.4	28,000,000	16.8
Bhutan	370,423	45.3	350,000	42.8
India	462,124,989	34.1	251,000,000	18.5
Maldives	340,000	76.5	320,000	72.0
Nepal	16,190,000	54.7	8,700,000	29.4
Pakistan	44,608,065	22.2	32,000,000	15.9
Sri Lanka	6,710,160	32.0	5,500,000	26.3

Out of Total Population 28,850,717 internet users are 4,962,323, Share of Nepal Population: 17.2 % (penetration) where as Share of World Internet Users: 0.1 % Internet Users in the World: 3,424,971,237. In 2016, share of the internet users for Nepal was 19.7 %. Share of the internet users of Nepal increased from 0.3 % in 2002 to

19.7 % in 2016 growing at an average annual rate of 44.49 %. Digitalization is becoming a larger component of GDP in many Asian economies. Among the world's top 10 economies with the largest ICT to GDP ratio, 7 are in Asia, including Malaysia, Thailand and Singapore. (Table 8)

Table 8: Internet penetration in Nepal

Year	Internet users	Penetration (%of Pop)	Total Pop.	Non-users	1Y user Change	1Yuser change	Pop. change
2016	49,62,323	17.2%	2,88,50,717	2,38,88,394	4.5%	2,12,870	1.18%
2015	47,49,454	16.7%	2,85,13,700	2,37,64,246	9.2%	3,99,276	1.2%
2014	4,350,177	15.4 %	28,174,724	23,824,547	17.5 %	648,125	1.22 %
2013	3,702,052	13.3 %	27,834,981	24,132,929	20.7 %	635,938	1.22 %
2012	3,066,115	11.1 %	27,500,515	24,434,400	25.3 %	619,984	1.18 %
2011	2,446,131	9 %	27,179,237	24,733,106	14.8 %	314,872	1.13 %
2010	2,131,260	7.9 %	26,875,910	24,744,650	306.8 %	1,607,384	1.07 %
2000	48,585	0.2%	2,37,40,145	2,36,91,560	42.1%	14,389	1.82%

Source: www.internetLiveStats.com

CONCLUSION AND SUMMARY

Still cash is king in Nepal. If all the plans by the government on increasing banking access are implemented, payment landscape in Nepal will look totally different within a few years and cash will no longer remain a king. Digitization has the potential to support growth in many different sectors and the growing digital economy will make positive contributions to the productivity of non-ICT sectors as well. Public private partnership and foreign investments would need to play a major role in Digital Nepal by bringing technological expertise and capital infusion for sustainability and scalability of the program.

Government of Nepal should initiate necessary policy interventions to encourage private sector participation in the Digital Nepal program. Government can play a role in a number of areas to drive digital opportunities in Asia. It is acknowledged that there are many policy agendas associated with digital, ranging from privacy, cyber-crime, and censorship to robotics. Banks are facing with higher operating costs in comparison to reduced bank charges and interest earned in recent years. To control the operating cost, they have increasingly turned toward automation and electronic networks to replace labour based production

systems, especially for taking deposits, dispersing payments and making credit available.

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