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- Sustainable Development, Entrepreneurship, and Social Entrepreneurship

It aims at disseminating new knowledge in the field of different domain areas of management, development studies, and related disciplines. It provides a platform for discussions and exchange of knowledge among academicians, industry professionals, researchers, and practitioners who are associated with the management, financial institutions, public and private organizations, as well as voluntary organizations.

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Sustainable development is the buzzword today. Though this word is defined in multiple ways, its popular connotation is development to meet the requirements of the present generation without compromising on the capabilities of the future generations. This requires balancing different and more often competing needs and considering the future impacts of the present decisions.

Sustainable development has four major aspects (human, social, economic and environmental), and these aspects are commonly referred to as the four pillars of sustainable development. All these four pillars of sustainability are mutually dependent. The human aspect of sustainability is all about maintaining and improving the available human capital. This is primarily done by improving health services enhancing knowledge, and skills and regularly updating the education system. The human aspect of sustainability is very important as, besides promoting the well-being of society, it provides the required skilled manpower to the organisations so that they can function and sustain. Achieving sustainable development requires a thorough understanding and appreciation of socio-economic effects and environmental aspects of a decision along with the enablers and limitations of the same. The concept of social sustainability aims to improve social quality and gives lots of importance to the equitable relationship among individuals. It aims at creating a fair, healthy and inclusive society. Economic sustainability focuses on maintaining and improving the economic growth parameters in terms of quantity as well as quality, whereas environmental sustainability focuses on protecting natural capital without compromising on positive financial outcomes.

With an eye towards the future, sustainable development focuses on the present as well. To make this happen, every entity needs to contribute collectively. Though the role of the government is key, a sustainable development agenda cannot be achieved without support from the public and the active contribution of businesses and companies. It is often mentioned that in developing countries, more than the governments, it is the businesses that impact the approach towards sustainable development. The purpose of corporations is to improve customers' lives, build their trust in society and attract loyal employees. Delving deeper, small and medium enterprises (SMEs) contribute significantly towards sustainable development agenda considering their contribution towards employment generation and economic growth. While the sustainability agenda is driven largely by SMEs, the growth of SMEs can be achieved only by integrating their business strategies with sustainability principles.

The articles in the present issue enhance the understanding of determinants of SME growth, suitable reward policies to motivate employees with disabilities and

the impact of regional blocs on foreign direct investment (FDI) flows. In addition, an empirical study about the effectiveness of accounting software is included along with an in-depth analysis of the Indian dairy sector highlighting its sustainability concerns. Lastly, a book review of a popular econometrics book has been included in the basket.

Krishna Veni Raparla and Satish Modh attempted to understand the determinants of SME growth by examining various popular theories, such as the theory of planned behaviour, the theory of reasoned action, the diffusion of innovation theory, and technology, organization and environment framework. Their study provided new academic perspectives about the various determinants of SME growth and found based on discussed theories that entrepreneurial skills significantly influence business growth. This study also provides policymakers with a solid platform to develop strategies for nurturing entrepreneurial activities to improve the overall quality of life.

Kavita Pandey and Aruna Deshpande performed an in-depth qualitative study using cases of various business organisations to understand their reward and recognition policies for motivating their differently abled employees. Using the high-performance work practices framework, the study concluded that appreciation, rewards, honour and acknowledgement go a long way in attracting, retaining and motivating employees. They also observed that committed and continuously evolving organisations are concerned and integrate people with disabilities into various HR activities.

Rinku Manocha empirically examined the impact of three trading blocs, that is, the Association of Southeast Asian Nations (ASEAN), Asia Pacific Trade Agreement (APTA) and South Asian Association for Regional Cooperation (SAARC) on FDI flows and FDI stock over 12 years. The study using a rigorous quantitative analysis found that while ASEAN and APTA attracted FDI flows and stocks both from intra-bloc and extra-bloc countries, the coefficients were not found to be significant in the case of APTA. In the case of SAARC, it was found that more work is needed to attract FDI stocks from Asian economies.

Rachna Singh and Anand Kishore Chaturvedi analysed the Indian dairy sector and presented a systematic review of 250 articles focussing on the production and consumption pattern of milk and the sustainable advantages in the dairy sector. They found a positive effect of milk intake in preventing various kinds of health ailments, contrary to other non-epidemic diseases. The authors draw attention to the sustainability aspect of the milk supply chain and discuss in detail the trade-off between sustainability and the challenges in the same. The study identifies the need for developing new milk and dairy-based products for Indian and global markets. The government needs to provide financial support for developing innovative techniques for establishing efficient processing techniques.

Meena Sharma and Pallavi Vartak conducted an empirical study about the accounting software choices of business organisations in Mumbai. Based on the analysis of the collected data, they concluded that reliability, data quality and ease of use are the prime factors considered by users when selecting accounting software. They found that software helps in cost reduction, thereby increasing

profitability and improving productivity. The most preferred accounting software is SAP and Tally amongst business units in Mumbai.

Lastly, Prabhakara, S reviewed a popular book, *Basic Econometrics* by Damodar N. Gujarati and Dawn C. Porter, and found it to be an excellent text. The book offers a simple but thorough introduction to econometrics and fuses current research with econometric principles. They mentioned that the book is equally useful for beginners as well as for experienced researchers. It explains the concepts in simple language, making it easy for beginners to grasp the concepts. For researchers, it is very useful as it highlights the prospects and challenges of econometrics through the prism of applied research. This book lacks a glossary, though it has a subject index at the end of the book.

I hope readers enjoy reading the articles and generate more insightful ideas about the ongoing debate about sustainability challenges.

Sushma Verma

Associate Editor

Impact of Regional Blocs on FDI Flows: A Study of Select Asian Blocs

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Rinku Manocha 

Abstract

Trading blocs are expanding their coverage and spectrum. Hence, along with trade liberalisation, areas such as liberalised domestic policies, strong infrastructure platforms and less stringent structural set-ups are gaining popularity among various newly negotiated trade agreements. With such support, trade blocs are not only contributing towards stimulating trade but also encouraging investment/foreign direct investment (FDI) flows (and stock) among member countries. Further, following the European Union trends, the Asian continent is emerging as a web of trade blocs. This study is an attempt to empirically examine the impact of three trading blocs (ASEAN/APTA/SAARC) on FDI flows and FDI stock over a period of 12 years via a panel regression framework augmented with gravity model specifications. The results for FDI stocks were found to be more captive. The results for ASEAN suggested that members of ASEAN are significantly attracting FDI stock both from intra-bloc and extra-bloc countries. Results for Asia Pacific Trade Agreement (APTA) found that APTA members are attracting FDI stocks from intra-bloc and extra-bloc economies, but the coefficient was not significant. However, the results suggest that SAARC countries still need to work towards attracting FDI stocks from Asian economies.

Keywords

RTA, FDI, ASEAN, APTA, SAARC

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Introduction

On the world map, the emergence of regional trade agreements (RTAs)/trading blocs has significantly contributed to a multilateral trading system. RTAs are negotiated with an intent to build, strengthen and boost trade flows among member economies. OECD (2001) defines a regional trading agreement as ‘an agreement among governments to liberalize trade and possibly to co-ordinate other trade-related activities’. Economies across the globe are entering into regional integrations to minimise (and even eliminate) tariff and non-tariff-related bars (or barriers) to ease the flow of goods, services and other factors of production. With the new era of regionalism, RTAs are also enlarging the spectrum of their coverage. The existing RTAs are expanding and new RTAs are diversifying to cover areas such as services, agriculture, environment, and investment. Hence, the rise in the quantum and stretch of RTAs has stimulated the flow of trade and investment among the member nations. While negotiating a new era of RTAs, economies try to liberalise domestic policies, remove structural bottlenecks, promote compactable environment and provide infrastructural support which helps in stimulating the flow of investment, goods and services.

Talking about foreign direct investment (FDI) flows and RTAs, a new era of RTAs is stimulating investment flows both directly and indirectly among the countries within the bloc. A number of RTAs are directly negotiating investment-related provisions as part of existing RTAs and, hence, are providing a direct route/channel that stimulates investment among members of a bloc. However, some RTAs indirectly support FDI inflows among member countries as they come up with intent and policies that remove structural hindrances and strengthen the investment-related environment. Further, RTAs provide a signalling effect (Kaushal, 2022) and play a catalytic role among member economies, hence providing shared complementarities (Paul, 2017) to industries that stimulate investment among member economies. Chakraborty et al. (2019) suggested that trading blocs and economic integration policies are deepening global value chains, production processes and distribution networks in the Asian subcontinent.

Impact of Trade Blocs on Investment

FDI is generally defined as having control over a business organisation operating in an economy by an entity established in a non-native nation. There are two major classifications of FDI (investment), namely, horizontal FDI and vertical FDI. Horizontal FDI can be seen when the home country enlarges market size by entering the host economy, whereas vertical FDI can be reported where the home economy establishes production processes in the host economy to boost benefits associated with cheaper cost of production. RTAs might have direct/indirect impacts on the horizontal as well as vertical investment coming from non-native economies. Therefore, to study the impact of regional blocs (RTAs) on investment, it becomes essential to chalk down the relationship between trade, investment and RTA.

Horizontal FDI

- Before entering an RTA, countries (both home and host) have high trade barriers, and hence, the home country may face problems associated with a high cost of serving the host economies via trade. This encourages the home economies to jump the tariff structure and establish foreign affiliations in the host countries (go for horizontal FDI). However, when the home and the host economies agree to form an RTA, servicing the market via trade/export as trade becomes cheaper as a result of RTA formation leading to an end of tariff jumping effects, thus discouraging horizontal FDI and facilitating new trade among member countries of the RTA so formed.
- However, the above-mentioned impact is seen only if the products are identical, and the cost of production is the same in both economies. However, if the products manufactured in both countries are heterogeneous (and not homogeneous) and are produced by taking advantage of locational factors of production, then in such case, horizontal FDI cannot be substituted for trade. Therefore, the formation of RTA may promote investment, hence leading to an extended market impact. Hence, RTAs act as mechanisms to liberalise and, hence, facilitate a compatible environment among members, which in turn acts as a strengthening/encouraging platform for investment.

Vertical FDI

- International vertical integration effects can be seen when goods are produced in a host country where labour abundance or technical know-how is available, and the market for the final product is available in both the home and host countries. The emergence of RTAs leads to a reduction in trade barriers (for goods, services and other factors of production) and encourages vertical FDI among members. Hence, the creation of RTAs leads to investment creation among member nations.

Moreover, in the recent past, RTAs negotiated incorporating norms for investment liberalisation, compatible policies (such as domestic regulation norms, market access norms; property rights, stable trade policies and service sector reforms) and cross-border dispute settlement, which further facilitates investment along with trade (Yeyati et al., 2002) among members of an RTA. Even some of the blocs are explicitly entering into investment agreements that strengthen the flow of FDI among member nations and, hence, promote *investment creation*. In such cases, members of an RTA become a better destination for FDI and, subsequently, make non-members relatively less attractive leading to FDI (investment) diversion.

Literature Review

An insight into the existing literature depicts that few Asian studies have examined the intra-bloc FDI flows and direction of investment flows within a bloc. Rammal and Zurbruegg (2006) empirically examined the impact of regulatory quality of intra-FDI flows for ASEAN economies. Similarly, Sahu and Dash (2021)

examined the intra-FDI flows for five ASEAN economies and concluded that resource-seeking and efficiency-seeking motives of multinational corporations are driving forces of FDI in ASEAN countries. Similarly, Dang and Nguyen (2021), studying FDI inflows for ASEAN-7 economies suggested that significant contributions of policy-makers and institution quality in ASEAN developing economies are enhancing FDI inflow in the ASEAN market. Few studies have also examined FDI flows among SAARC countries. Hamid et al. (2023) examined FDI flows for SAARC economies over the period of 1996–2017 and found that political stability and government effectiveness contribute to FDI in SAARC nations. Srinivasan (2011) also examined the FDI inflows for SAARC countries over the tenure of 1970–2007, and suggested that more open-door policies and better infrastructural facilities will support FDI flows among SAARC countries.

However, we were able to have our hand on a few studies that not only have examined intra-bloc FDI flows but have also empirically examined the impact of RTA membership on FDI flows, and empirically examined the association between RTA and FDI flows. Studies examining the association between RTA and FDI were either RTA-specific studies or studies that have examined RTAs as a determinant of FDI flows/stocks among countries. Hence, this study divides the literature discussion into two sections, namely, the studies that have discussed the FDI flows within a specific RTA (trading bloc) and the studies covering RTA as a determinant in FDI stock/flows among member countries. Starting with studies that have captured FDI flows with a specific trade bloc, Park and Park (2008) examined the impact of RTA membership on FDI flows for East Asian blocs (ASEAN, ASEAN+3, ASEAN-Korea, ASEAN-Japan) from 1982 to 1999 by employing extended gravity model via random and fixed effects (FE) regression specification. The results suggested that RTA membership along with reforms is a key factor in attracting FDI in the East Asian region. Thangavelu and Narjoko (2014) also examined the impact of the ASEAN trade bloc on FDI flows over the period of 2000–2009 by employing gravity specification and found that FDI flows have a significant association with ASEAN membership. However, Fatema (2014) empirically examined the impact of the ASEAN investment area (AIA) by employing gravity specification over the tenure of 1990–2012. However, the results suggested that AIA has not significantly contributed to intra-FDI flows among the ASEAN countries. The impact of EU membership on FDI inflows among EU members was also examined by a few researchers. Baltagi et al. (2008) employed HAC estimation for the period of 1989–2001 to examine the impact of EU membership on FDI flows. The study suggested the positive impact of European agreements on bilateral FDI in Europe. Moreover, the estimation found relocation of FDI from Western European countries to Eastern European countries. Otieno et al. (2013) examined the impact of the East African Community (EAC) on intra-FDI flows by using generalised least square (GLS). The study concluded that non-significant results for EAC membership and FDI flows. Ullah and Inaba (2014) evaluated the panel regression model from 2001 to 2010. The study examined FDI flows in the ASEAN and SAFTA regions (using 9 Asian host economies and 23 source economies). The study found the coefficient for ASEAN and ASEAN-Japan to be positive but insignificant, whereas the results for SAFTA

were found to be significant and negative. Kumar (2022) qualitatively evaluated the association between RTA (SAARC trading bloc) and intra-FDI flows from 1998 to 2017. The study suggested that SAARC economies need to take progressive steps towards regional integration to boost cross-border investments.

Literature capturing RTAs as a determinant for intra-FDI flows (and stock) among members of a bloc was also identified. Yeyati et al. (2002) studied the determinants for bilateral FDI stocks for 20 OECD source countries to 60 OECD/non-OECD countries over the period of 1982–1998 by employing gravity specification. The study suggested that common free trade agreements (FTA) membership had a positive impact on bilateral FDI stock and, on an average, FDI stock doubles as a result of FTA membership. Similarly, Jang (2011) examined the determinants of intra-FDI flows among 30 OECD and 32 non-OECD countries over the period of 1982–2005 using a regression framework. The results suggested that bilateral RTA affects FDI negatively in the case of intra-OECD countries and positively in the case of extra-OECD countries. Jaumotte (2004) examined intra-FDI flows for 71 developing economies to study the impact of RTAs on FDI flows over the period of 1980–1999 by employing regression analysis. The results suggested that the creation of RTA boosts competition among member nations, leading to improvement in their domestic investment climate and, hence, better returns of RTA formation are reported. Medvedev (2006) employed a sample of 143 countries to study the association between RTA and FDI flows. The results suggested that deeper integration of regional blocs is more significantly associated with net intra-FDI flows for the said countries.

Velde and Bezemer (2006) examined the association between FDI flows and trading bloc membership for the United Kingdom and the United States to developing economies over the period of 1980–2001 by employing the regression framework. The results stated that trade blocs (CARICOM, ASEAN, ANDEAN and NAFTA) attracted more extra-regional FDI for the United Kingdom and the United States. Bae and Jang (2013) examined the impact of FTAs on intra-FDI flows for Korea and 184 partner economies over the period of 2000–2010 and employed country-pair FE for empirical examination. The results suggested that FTAs have encouraged FDI in Korea mainly through high-income countries for the vertical type of FDI. Bengoa et al. (2015) also examined the RTA variable for intra-FDI flows for 11 Latin American economies from 1996 to 2012 by employing ordinary least square, FE, random effects (RE) and Hausman–Taylor estimation. RTA variables were found to be positive but insignificant for FDI flows. Deger et al. (2013) examined FDI flows for 60 host economies with RTA impact using FE, RE and Hausman–Taylor estimation over the period of 1985–2006. The study found a more significant impact of RTA for the inter-OECD region rather than the intra-OECD region.

The review of the existing literature exhibits that various studies have addressed the impact of regional blocs on FDI flows using varied sample size, blocs and empirical tools to study the impact (and presence) of RTA among investing partners on the FDI flows/stocks. A brief note of the literature suggests that few studies (Fatema, 2014; Park & Park, 2008; Thangavelu & Narjoko, 2014) have examined the impact of East Asian blocs on intra-bloc FDI and a few (Kumar,

2022; Ullah & Inaba, 2014) have studied the association between South Asian blocs and intra-FDI flows, but we could not find any study that has empirically examined the impact of regional trading blocs on intra-FDI flows of South, South-East, East Asia (as a whole). Therefore, the focus of the current study was to empirically evaluate the impact of major RTAs of Asia (ASEAN, APTA and SAARC trading bloc) on investment flows.

Further, we could identify that most of the studies have employed panel regression analysis augmented with gravity model to study the impact of RTA on investment flows/stocks and, hence, this study also examines the impact of RTAs (select Asian blocs) on investment flows using gravity framework.

Rationale of the Study

Following the world trend, the Asian region is also actively participating in the formation of RTAs, as a result a web of trade agreements has emerged in the region. As the Asian economies are opening trade doors for RTA members, RTAs are not only providing benefits of trade to the member countries but also facilitating investment liberalisation among members. Therefore, the study is an attempt to measure the investment creation (and diversion) as a result of membership in the major trade blocs (ASEAN, APTA and SAARC) of Asia.

Further, large numbers of studies have covered the impact of regional economic integration on trade but not many have looked upon the investment impact, particularly for Asian economies. Therefore, this study empirically examines whether the economies of South–South Asia, South-East east Asia and East Asia can enhance the intra-regional FDI by promoting (or even by reviving the existing) RTAs. While existing studies for the Asian subcontinent examine the impact of individual RTAs in the region, our study will be an integrated approach empirically examining the investment effects for three major RTAs (ASEAN, SAARC and APTA) in the region of South, South-East and East Asia.

Research Methodology

The study captures whether the formation of regional economic integrations in South, South-East and East Asia helps in attracting investment in the region.

Data and Sample Size

Based on the data available, home countries covered to empirically examine the impact on investment flows and investment stocks in the Asian region are as follows: Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Japan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand and Vietnam.

The Asian home economies captured are as follows: Bangladesh, Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Republic of Korea,

Lao People's Democratic Republic, Macao, Malaysia, the Maldives, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand and Vietnam. Either due to the non-availability of data or no investment flow along some of the Asian economies (Brunei Darussalam, Macao), the reciprocal flow of investment is missing. Therefore, the study empirically estimates the effect of RTAs on investment flows in a sample of about 17 home and 19 host (South, East and South-East Asian) economies for a period of 12 years (2003–2014) using the gravity model. The study has 1,824 (152 pairs) yearly observations for yearly bilateral inward investment stock among the countries under consideration. However, the sample size for FDI inflows for host countries was the same except for Nepal due to the non-availability of data. The data for FDI inflows capture 143 pairs and 1,716 yearly observations for the period of 12 years (2003–2014) (sample size limitation due to the non-availability of bilateral FDI data).

Data Source

The sources of data have been listed in Table 1.

Methodology

Our methodology uses gravity model specification to estimate the investment creation and investment diversion effects of RTAs. In the existing literature, the specifications for the gravity model covering FDI (investment) have studied either the horizontal aspect or the vertical aspects or both. Our study captures both horizontal motives (market size) and vertical motives (factor endowment) simultaneously as part of a single regression framework. So, we have used the

Table 1. Sources of the Data.

Variable	Source
1. FDI inflows/inward-stocks	UNCTAD World Investment Report 2014
2. GDP of both the home and host countries	World Bank Development Indicators
3. GDP per capita of both the home and host countries	World Bank Development Indicators
4. Total population of the source country	World Bank Development Indicators
5. Trade openness (export + import/GDP) of both the home and host countries	World Bank Development Indicators
6. Contiguous	CEPII
7. Bilateral distance	CEPII
8. Common language	CEPII
9. RTAs (SAARC/APTA/ASEAN) both creation and diversion	WTO Regional Trade Agreement Database
10. Economic freedom index	www.heritage.org

extended gravity model—Knowledge capital model (also known as the CMM model) for FDI covering investment and trade costs. CMM was given by Carr et al. (1998) covering both horizontal attraction and vertical motivation.

Gravity Model for Investment

A large number of empirical studies evaluate the gravity model for investment by using bilateral FDI stocks/flows as a dependent variable. Investments are generally reported based on both stock and flows. Flow is a variable which covers the impact over a period, whereas stock is a variable which captures at a point in time. Both FDI stock and FDI flows have limitations and advantages. Coupet and Mayer (2007) and Subasat and Bellos (2011) suggest that working with FDI stock rather than flows has certain advantages. For example, stocks are more stable than flows and measure capital ownership better as they involve FDI that is financed in local capital markets. However, Globerman and Shapiro (2002) suggested the use of FDI flows, as the calculation of FDI stock is not homogeneous across countries. Since we are also using panel data with different source countries, it would be advisable to use FDI flows to avoid heterogeneity across countries. Hence, this study is an attempt to examine the impact of RTAs on both FDI inflows and FDI inward-stocks with two different regression specifications. The functional form of our gravity model for investment inflows/inward-stocks capturing investment creation/diversion can be stated as follows:

FDI inflows/FDI inward-stocks = $f(\text{market size, skill difference, trade openness of home country, trade openness of the host country, population of home country, population of host country, common border, common language, distance, domestic economic index, SAARC investment creation, SAARC investment diversion, APTA investment creation, APTA investment diversion, ASEAN investment creation, ASEAN investment diversion})$.

We use a double log model for panel data regression to analyse the determinants. The data for some of the observations of FDI bilateral inflows/inward-stock were missing. To accommodate zero observations, we follow the existing protocol of expressing the dependent as $\log(1 + \text{FDI})$ (Eichengreen & Irwin, 1995; Rajan, 2008; Stein & Daude, 2007). Generally, a smaller value or 1 is added to the existing FDI flows/stocks to take care of zeros or missing values in the dependent variable. The basic regression equation used in the study is as follows:

$$\begin{aligned} & \log(1 + \text{FDI}_{ijt}) \\ & = \text{Log}(\text{GDP}_{it}.\text{GDP}_{jt}) + |\text{LogGDPpc}_{it} - \text{LogGDPpc}_{jt}| + \log \text{POP}_{jt} + \log \text{TOPEN}_{it} \\ & + \log \text{TOPEN}_{jt} + \text{LogDIS}_{ij} + \text{CBORDER} + \text{COM_lang} + \text{LogECOINDEX}_{it} \\ & + \text{SAARCinv}_{tcr} + \text{SAARCinv}_{tdv} + \text{ASEANinv}_{tcr} + \text{ASEANinv}_{tdv} + \text{APTAINV}_{tcr} \\ & + \text{APTAINV}_{tdv} \end{aligned}$$

where FDI_{ijt} is bilateral FDI stock/flow between countries i and j ,
 i = the host (destination) country and j the home (source) country,
 GDP_{it} = the nominal GDP of the host country i ,
 GDP_{jt} = the nominal GDP of the home country j ,
 GDPpc_{it} = the per capita GDP of the host country i ,

$GDP_{pc_{jt}}$ = the per capita GDP of the home country j ,
 DIS_{ijt} = the distance between the home and the host country,
 POP_{jt} = the population of the home country j ,
 $TOPEN_{it}$ = trade openness of the host country i ,
 $TOPEN_{jt}$ = trade openness of the home country j ,
 $CBORDER_{ijt}$ = dummy variable with value 1 if both the countries i and j are sharing a common border (contiguous) otherwise 0,
 COM_Lang_{ijt} = dummy variable with value 1 if both the countries have linguistic proximity otherwise 0,
 $ECOINDEX_{jt}$ = the domestic economic index of host country i for the given year t ,
 $SAARC_{invtr}$ = dummy variable with value 1 in case both the countries were partners of the SAARC trading bloc for the given year t , otherwise 0,
 $SAARC_{invtdv}$ = dummy variable with value 1 in case the home country belongs to SAARC trading bloc for the given year t , otherwise 0,
 $APTA_{invtr}$ = dummy variable with value 1 in case both the countries were partner of the APTA trading bloc for the given year t otherwise 0,
 $APTA_{invtdv}$ = dummy variable with value 1 in case the home country belongs to APTA trading bloc for the given year t otherwise 0,
 $ASEAN_{invtr}$ = dummy variable with value 1 in case both the countries were partner of the ASEAN trading bloc for the given year t otherwise 0,
 $ASEAN_{invtdv}$ = dummy variable with value 1 in case the home country belongs to ASEAN trading bloc for the given year t otherwise 0,
 Following the existing literature for gravity specification (Binh et al., 2014), this study incorporates trade cost variables such as distance, common border and common language as control variables.

A Brief Explanation of Explanatory Variables

1. Sum of the GDP of both the home and host economies (extended market)

The combined GDP of both the home and host countries indicates an extended market available to the investing country. Countries with relatively larger markets attract more and more investors. The study employs the sum of GDP of both countries in order to capture the enlarged market size (Resmini & Siedschlag, 2008). The coverage of the variable is like the variable examined by Park and Park (2008) and Bae and Keum (2013) to measure the impact of the extended market size on FDI. The variable is expected to be positive in case the host economy acts as an extended market for the home economy attracting horizontal investments.

2. Absolute difference between GDP per capita of home and host country

The study captures the difference in the labour productivity (SKILL) difference by examining the absolute difference between per capita income (GDP per capita) of both the home and host countries (the vertical FDI drive). The difference in the GDP per capita measures the labour cost difference between the economies. To capture the factor endowment some of the existing studies, Park and Park (2008) and Cardomone and Scoppola (2012) have examined the differential between the

skill level (generally school-level enrolment). However, due to a lack of data for school enrolment for a large number of economies, the study was not able to capture skill differential with respect to school enrolment ratio.

Some of the studies (Jang, 2011; Resmini & Siedschlag, 2008) captured SKILL as an absolute difference between GDP per capita between both economies. Our study follows a similar gauge for the SKILL differential. The *absolute difference between GDP per capita* of the home and the host country captures the vertical FDI drive. The variable is expected to be positive if the Asian region is able to attract FDI from economies which have no absolute difference with respect to GDP per capita. However, in case Asian economies are attracting more investment from countries which have substantial GDP per capita differential, then the variable will bear a positive sign.

3. *Distance*

Distance between the home and the host explains whether geographical proximity between both countries is attracting FDI or not. Distance is largely associated with transportation costs. However, in the case of FDI as the dependent variable, the impact of distance will vary depending upon the type of FDI (Egger, 2008; Kayam & Hisarciklilar, 2009). If the motive is to achieve production efficiency (vertical FDI) then the lesser the distance, the more the flow of investment. For market expansion (horizontal FDI) larger distance will promote investment to the destination economy. The tendency to capture the market by enhancing trade increases with lesser distance. Therefore, the impact of the variable is ambiguous.

4. *Contiguous (common border)*

The variable captures whether economies sharing a common border help in attracting investment among investing countries. The study attempts to evaluate whether countries nearby have less serving cost. Fratianni and Oh (2009) found that a common border between the home and host countries was positively and significantly attracting FDI. To capture the impact of the variable, the study employs a dummy variable with a value of 1 if both countries share a common border, otherwise 0.

5. *Common language*

A common language between the home and host countries helps the investing country in reducing communication (and interpretation) costs. Sharing a common language is indicative of the cultural similarity between both countries. Language skill and cultural similarity help in facilitating FDI among nations. Leshner and Miroudot (2006) found common official language significant and positive for investment flows. The study incorporates common language as a dummy variable with value 1 in case both countries share an official common language otherwise 0. According to CEPII (French Research Centre for International Economics), countries are officially said to share a common language if a language is spoken by at least 9% of the population in both countries.

6. *Population of the home country*

The study captures the physical size of the home country by including the population of the country from which FDI is received. The variable captures whether countries with a larger size of populations will be providing FDIs to other economies. In case the population in the home country is looking for self-sufficiency, then a larger size of the population in the home country will discourage FDI outflows in case investment is market seeking. Moreover, a country with a larger population will support domestic production in case the FDI is market seeking. So, in such case, FDI and population will be negatively related. The impact of the variable is ambiguous.

7. *Trade openness of host and home countries*

The study captures trade openness to examine the impact of trade liberalisation measures of home and host countries on FDI inflows/inward-stocks in the Asian region. Openness has been examined as a percentage of trade (export + import) over GDP. Countries come up with policies and measures to support liberalisation and such efforts ease the flow of trade and investment across economies. Krishnankutty (2010), Resmini (2000) and Nunes et al. (2006) found positive and significant results for trade openness and FDI.

Economies having stringent tariff policies promote market-seeking FDI with tariff jumping tendency and when the economies liberalise, such market-seeking investment gets demotivated. Studies such as Akenbor and Tennyson (2014) and Liu (2006) found a negative and significant relationship between FDI and trade openness. Therefore, the impact of the variable is ambiguous.

Similarly, the impact of trade liberalisation of the home country on investment flow can also be measured by incorporating trade openness of the home economy and whether the policies or measures of trade liberalisation of the home countries are supporting the outflow of investment to the Asian region.

8. *Domestic economic freedom index of the host country*

In order to capture the domestic environment of the host economy, the study incorporates the domestic economic index. Park and Park (2008) examined the economic Freedom Rating compiled by the Fraser Institute for capturing domestic reform as a determinant of FDI. This study applies the economic freedom index provided by the Heritage Foundation¹ in order to examine the whether the domestic environment of the host economy is supportive towards FDI inflows. The index provides comparative scores country-wise and covers areas such as property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labour freedom, monetary freedom, trade freedom, investment freedom and financial freedom. The index has been incorporated to examine the business and investment climate in the host country. We expect the variable to have a positive and significant impact on Asian FDI inflows.

9. *Investment creation variables (SAARCinvtr/APTAinvtr/ASEANinvtr)/intra-bloc investment*

The study incorporates RTA dummy variables to examine the investment creation (intra-bloc investment) impact of three significant RTAs in the region of

South, East and South-east Asia, namely, SAARC, APTA and ASEAN. RTAs bring a strong economic bond between the member nations which stimulates a liberal environment, mutual compatible policies and favourable treatment. This supports not only trade but also investment among member nations. The study includes three RTA dummy variables to examine the impact of SAARC, APTA and ASEAN trading blocs, namely, SAARCinvtr, APTAinvtr and ASEANinvtr. The value of the variables is 1 in case both the home and host countries are part of the regional bloc for the given year t , otherwise 0. We expect the coefficient of the variable to have a positive impact on the investment flow in the region.

10. Investment diversion variables (SAARCinvtdv/APTAinvtdv/ASEANinvtdv)/extra-bloc investment

The variable has been included to examine whether Asian region is receiving investment inflows/inward stocks from countries which are not part of the regional blocs (extra-bloc) (SAARC/APTA/ASEAN). In case the trading blocs are aiding the member nations to stimulate investment among them and are reducing (diverting) investment from non-members, then the coefficient for investment diversion will bear a negative coefficient. The value of the variable/s is 1 in case the host country belongs to the trading both for the given year t , otherwise 0.

Research Methodology

Due to the two-dimensional nature of the data, the study applies panel regression. The existing literature depicts the use of various statistical tools for capturing the RTAs on investment. The studies capturing the impact of regional trading blocs generally need to control bilateral specific effects; therefore, FE specification and RE specification have been intensively used. Bengoa et al. (2015) and Deger et al. (2013) analysed the FDI pattern using FE, RE and Hausman–Taylor estimation. Subasat and Bellos (2011) and Hossain (2015) apply RE with GLS corrected for heteroskedasticity and autocorrelation to examine the impact on investment. Hill and Menon (2014) analysed FDI inflows within countries by applying the FE model. Cardamone and Scoppola (2012) and Berger et al. (2009) applied FE and dynamic GMM along with other model specifications. Medvedev (2006) and Park and Park (2008) examined FDI using RE as well as FE specifications. As a large amount of data for bilateral FDI (dependent variable) are reported as zero, some of the studies have also applied the Tobit regression model (censored regression) along with other model specifications (Bae & Jang, 2013; Leshier & Miroudot, 2006; Ullah & Inaba, 2014).

Fixed Effects, Random Effects and Hausman–Taylor Estimation

Panel data can efficiently be examined using FE and RE specifications. But both have certain pros and cons. Fixed effect specification correlates individual specific effects with explanatory variables but time-invariant variables cannot be examined using FE. REs randomly draw individuals from a large sample without correlating the individual effects with independent variables. But time-invariant variables can be efficiently captured using RE. However, the choice between RE and FE

depends upon the results of the Hausman test. Apart from FE and RE estimations, Hausman–Taylor estimation is also popularly employed to examine the explanatory variables, particularly when both time-variant and time-invariant variables are simultaneously examined.

Tobit Regression

In case the entire range of values for the regressands is not available (or reported), but the data for explanatory variables are available, then a censored regression model, say, the Tobit regression model, can be applied to explain the impact of explanatory variables (Gujarati, 1995). Yeyati et al. (2003) applied the Tobit regression model to accommodate the zeros in FDI flows in order to examine regional integration and FDI.

The study captures the results generated by HT estimation and Tobit regression model for interpretation. The results for RE are reported just for comparison.² HT estimation takes care of time-invariant variables and cross-sectional variations, therefore, the results reported by HT estimation have been shown. As discussed, the dependent variable is reported as $\log(\text{FDI}+1)$ ³ both for HT estimation and Tobit regression model.

Results and Analysis

Results for FDI Inward Stock as Dependent Variable

Table 2 depicts the results for FDI inward-stocks as the dependent variable. The results for market size are found to be highly significant and positive. This indicates that Asian economies are offering larger markets to the home economies to invest. This implies that the Asian region is definitely promoting horizontal FDI (market seeking). The results for the differential in GDP per capita are found to be negative and significant (for RE as well as Tobit regression model). The results indicate in case the GDP per capita of host and home countries differs substantially, the Asian countries are not able to attract vertical investment in the region.

The results for the trade openness of the host country are found to be negative and significant. This indicates that trade liberalisation policies in the region discourage investment. Liberal trade policies in the region promote trade (import) in the region and dilute tariff jumping need of FDI. However, the results for trade openness of the home country are found to be insignificant (significant only under the Tobit regression model) but positive. This implies economies with liberal policies are investing more in Asian regression. The coefficient for the population size of the home country is found to be insignificant (significant only under HT estimation) but negative. This indicates countries with a larger population size would like to go more for an absorption strategy rather than making investments offshores. The results for the economic freedom index of the host country were found to be significant and positive. This suggests countries with better domestic environments are able to fetch more FDI inflows.

Table 2. Estimates of the Gravity Model for FDI Inward Stock as Dependent Variable. (Results for the Period 2003–2014 for 17 Economies)

	Hausman–Taylor Estimation			Random Effects			Tobit Regression		
	Coeff	Std. Err.	P-value	Coeff	Std. Err.	P-value	Coeff	Std. Err.	P-value
Log(FDI+I)									
Log(GDPi/GDPj)	1.165*	0.046	0.000	0.978*	0.043	0.000	1.050*	0.047	0.000
Log(GDPpci-GDPpcj) (SKILLij)	-0.063	0.140	0.651	-0.542*	0.101	0.000	-0.378*	0.122	0.002
LogTOPNI	-1.051**	0.229	0.000	-0.332	0.210	0.113	-0.675*	0.231	0.003
LogTOPNJ	0.290	0.224	0.195	0.627*	0.197	0.001	0.534*	0.209	0.011
LogPOPj	-0.391***	0.182	0.032	-0.004	0.105	0.972	-0.126	0.131	0.334
LogECOINDi	6.129*	0.845	0.000	6.296*	0.828	0.000	6.267*	0.827	0.000
LogDISij	-1.713***	0.739	0.021	-1.249*	0.366	0.001	-1.392*	0.462	0.003
COM_BORij	-0.002	0.434	0.997	0.027	0.221	0.904	0.020	0.278	0.943
COM_LANij	0.479	0.370	0.195	0.406**	0.194	0.036	0.446***	0.242	0.066
SAARCcr	0.279	0.568	0.624	-0.054	0.302	0.858	0.078	0.375	0.836
SAARCdv	0.093	0.446	0.836	-0.744*	0.247	0.003	-0.475	0.313	0.129
ASEANcr	1.070**	0.527	0.042	0.447	0.282	0.113	0.724**	0.352	0.040
ASEANdv	1.221*	0.493	0.013	0.289	0.278	0.299	0.653**	0.349	0.061
APTAcr	0.193	0.442	0.662	0.054	0.255	0.833	0.094	0.311	0.763
APTAdv	0.367	0.384	0.339	0.403*	0.205	0.049	0.405	0.254	0.111
CONST	-26.178*	3.371	0.000	-28.382*	2.213	0.000	-27.881*	2.459	0.000

Note: *, **, and *** indicate statistical significance at 1%, 5% and 10% levels, respectively.

The results for time-invariant variable, distance, are found to be negative and significant. This suggests with lesser distance more flow of investment and, hence supporting vertical FDI. The results for a common border are found to be insignificant. The results for common language suggest more investment slide among nations that have linguistic proximity. The results for variables of our interest, three regional trading bloc (SAARC/APTA/ASEAN) variables are not uniform. The results for intra-SAARC investment creation were found to be positive but insignificant. The results depict that SAARC trading bloc is just facilitating investment among member nations and not a major determinant of investment. The results for SAARC investment diversion are also found to be insignificant. As the sample size for home countries was capturing economies in the Asian region, results for SAARC creation and diversion indicate that SAARC countries do not receive a major share of its investment from Asian economies. The results for ASEAN investment creation and ASEAN investment diversion were found to be quite encouraging. Both ASEAN investment creation and ASEAN investment diversion were found to be positive and significant. This indicates that ASEAN economies are receiving investment both from ASEAN as well as non-ASEAN economies. The results for APTA investment creation were found to be positive but insignificant. The results for APTA investment diversion are found to be positive and insignificant for HT estimation but nearer to significant under the Tobit model (and significant for RE). The results for APTA suggest that intra-APTA investment movement is not significant (just a promoter) but APTA countries are getting investments from other Asian home economies.

Results for FDI Inflows as Dependent Variable

The results for FDI inflows as a dependent variable are depicted in Table 3. The results for extended market size (sum of GDP of both the host and home economies) are found to be significant and positive. This indicates the extended market is a pull for investment flow in the Asian region. The results for GDP per capita differential were found to be significant but negative, suggesting a lack of attraction towards FDI inflows between economies with a differential in GDP per capita. The results for trade openness for FDI inflows were not similar to FDI inward-stock. Both the trade openness of the home and host countries was found to be positive and significant. This indicates liberal trade policies are stimulating FDI flows in the region. The results for the economic freedom index of the host country were also found to be significant and positive. The economies with better domestic, investment, financial and macro policies are better destinations for investment.

The results for distance, common border and linguistic proximity bear the expected sign and are significant (HT estimation results are insignificant but with expected sign). This indicates that countries with lesser distance and cultural similarity are able to fetch more FDI inflows and save information-related costs. The physical size (population) of the home was found to be positive and significant. This indicates larger FDI inflows from countries with a larger population size.

For FDI inflows as a dependent variable, the results for SAARC investment creation were found to be insignificant and negative, indicating no intra-SAARC

Table 3. Estimates of the Gravity Model for FDI Inflows as Dependent Variable. (Results for the Period 2003–2014 for 17 Economies)

	Random Effects				Tobit Regression Model				Hausman–Taylor Estimation			
	Coef.	Std. Err.	P-value		Coef.	Std. Err.	P-value		Coef.	Std. Err.	P-value	
Log(FDI+I)												
LogECOINDi	2.323*	0.788	0.003		2.355*	0.788	0.003		1.41***	0.840	0.093	
LogTOPNi	0.659*	0.195	0.001		0.666*	0.194	0.001		0.358	0.237	0.131	
LogTOPNj	1.026*	0.178	0.000		1.023*	0.176	0.000		1.078*	0.235	0.000	
LogPOPj	0.153***	0.085	0.072		0.15***	0.084	0.064		0.040	0.223	0.858	
Log(GDPi.GDPi)	0.457*	0.041	0.000		0.456*	0.041	0.000		0.504*	0.048	0.000	
Log GDPpci-GDPpci (SKILLij)	-0.418*	0.087	0.000		-0.422*	0.086	0.000		-0.26***	0.154	0.086	
CONTIGij	0.279	0.178	0.116		0.280*	0.173	0.107		0.290	0.576	0.615	
COM_LANij	0.353*	0.152	0.020		0.351*	0.149	0.018		0.402	0.473	0.395	
LogDISij	-0.515*	0.290	0.076		-0.513*	0.283	0.070		-0.539	0.938	0.565	
SAARCr	-0.255	0.249	0.306		-0.256	0.244	0.293		-0.187	0.764	0.807	
SAARcdv	-0.645*	0.197	0.001		-0.648*	0.192	0.001		-0.532	0.573	0.354	
ASEANcr	-0.423***	0.247	0.086		-0.429*	0.243	0.077		-0.184	0.699	0.792	
ASEANDv	-0.41***	0.241	0.090		-0.42***	0.238	0.080		-0.100	0.646	0.876	
APTacr	0.180	0.223	0.419		0.178	0.218	0.414		0.221	0.611	0.718	
APTAdv	0.235	0.183	0.198		0.235	0.179	0.189		0.263	0.551	0.634	
CONSTT	-16.19*	1.984	0.000		-16.25*	1.966	0.000		-14.37*	3.870	0.000	

Note: *, **, and *** indicate statistical significance at 1%, 5% and 10% levels, respectively.

investment flow among SAARC countries. The results of SAARC investment diversion were also found to be negative and significant (insignificant only for HT estimation). The results indicate that SAARC nations are neither getting investment flows from SAARC nations or from non-SAARC Asian nations. The results for ASEAN investment creation and investment diversion are similar to the results generated for SAARC trading bloc. Hill and Menon (2014) also found intra-ASEAN insignificant for FDI inflows as a dependent variable. However, the results of APTA investment creation and APTA investment diversion are found to be positive but insignificant. This implies APTA nations are getting investments from both APTA countries as well as non-APTA Asian countries but not significantly.

Conclusion

The results for FDI inflows and FDI inward-stock were quite divergent. Such results might have been due to the basic difference between the FDI flows and FDI stocks. Flows are recorded over a period (annually) and stocks are reported at a point of time (accumulative concept). FDI stock at the end of a period is generally derived as FDI stock at the beginning of the period plus FDI flows plus price change plus exchange rate changes plus other adjustments (Duce, 2003). The results for FDI stock depict the impact of explanatory variables on accumulated investment whereas the outcomes for FDI inflows are reflectors of annual or yearly attraction of investment in the region.

The results for FDI stock show a favourable outcome for extended market variables. However, countries with differential in GDP per capita are not able to attract investment in the region. Trade openness of the home country discourages investment as tariff barriers are reduced with liberal trade policies. Results for the economic freedom index, common language, lesser distance and trade openness of the host economy are found to be positive and encouraging. Moreover, regional variables are promoting inward FDI in the Asian region. The results for all three RTA (SAARC/APTA/ASEAN) creation variables are found to be positive but the results for ASEAN are found to be most encouraging. Results for SAARC investment diversion show a negative coefficient for two out of three models. The results suggest that SAARC nations do not get major (significant) FDI from the Asian region whether SAARC members or non-SAARC members. However, the results for ASEAN investment diversion are found to be positive, indicating Asian economies are investing more in the ASEAN bloc. Park and Park (2008) ASEAN economies are attracting FDI inward-stocks both from intra-bloc as well as extra-bloc. The results for APTA investment diversion were found to be positive but insignificant. The study indicated APTA economies are attracting investment both from APTA member and non-APTA Asian economies but not significantly.

The results for FDI inflows are similar for all variables except RTA variables. The results for FDI flows indicate that extended market variables, population, trade openness of home and host countries, lesser distance and language proximity are more significant variables for FDI inflows rather than RTA variables. Results

for SAARC and ASEAN investment creation/diversion were found to be negative and insignificant whereas results for APTA were found to be insignificant but positive.

We can summarise by saying that results for investment inward-stocks are more captive as stocks are said to be more stable and have a better assessment of capital holdings.

Future Scope of the Study

This study was an attempt to evaluate the impact of regional blocs (Select Asian) on FDI flows. The coverage of the study was largely towards investment however, future research can be suggested to evaluate the impact of Asian regional blocs on trade flows and service received. Further, a study can also be designed to examine the environmental impact of cross-border trade and investment flows among Asian economies as a result of bloc formation. Lastly, this study incorporated aggregate FDI flows/stocks (country-specific) among Asian economies; however, intensive research can be undertaken with firm-level cross-border flow of investments (firm-level FDI flows) and, hence, can be used as a better insight to evaluate the impact of regional blocs on investment flows.

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Notes

1. www.heritage.org
2. Fixed effects were not reported as RTA dummy variables for the period 2002-2014 became time invariant (the sample period).
3. As $\log(\text{FDI}+1)$ will generate value 0 in case $\text{FDI}=0$.

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References

- Akenbor, C.O., & Tennyson, O. (2014). Determinants of foreign direct investment in a domestic society: The Nigeria experience. *The Business and Management Review*, 4(4), 282–294.
- Bae, C., & Jang, Y.J. (2013). The impact of free trade agreements on foreign direct investment: The case of Korea. *Journal of East Asian Economic Integration*, 17(4), 417–444.
- Bae, C., & Keum, H.Y. (2013). The impact of FTAs on FDI in Korea. *World Economy Update*, 3(19), 1–6.

- Baltagi, B.H., Egger, P., & Pfaffermayr, M. (2008). Estimating regional trade agreement effects on FDI in an interdependent world. *Journal of Econometrics*, 145(1–2), 194–208.
- Bengoa, M., Sanchez-Robles, B., & Shachmurove, Y. (2015 June 29–30). *Latin America's FDI patterns: A panel data gravity model to assess the role of regional integration agreements*. Paper presented at 21st International Panel Data Conference, Central European University, Budapest.
- Berger, A., Cochrane, B., & Mitchell, S. (2009). The 2009–2013 research agenda for oncology nursing. *Oncology nursing forum*, 36, E274–82. 10.1188/09.ONF.E274-E282.
- Binh, D.T., Duong, N.V., & Cuong, H.M. (2014). Applying gravity model to analyze trade activities of Vietnam. *Journal of International Economics and Management*, 69, 3–18.
- Cardamone, P., & Scoppola, M. (2012, June 4–5). *Trade costs and the pattern of foreign direct investment: Evidence from five EU countries*. Paper prepared for presentation at the 1st AIEAA Conference 'Towards a Sustainable Bio-economy: Economic Issues and Policy Challenges,' Trento, Italy.
- Carr, D.L., Markusen, J.R., & Maskus, K.E. (1998). *Estimating the knowledge-capital model of the multinational enterprise*. National Bureau of Economic Research working paper No. 6773.
- Chakraborty, D., Chaisse, J., & Xu, Q.I.A. N. (2019). Is it finally time for India's free trade agreements? the ASEAN "present" and the RCEP "future". *Asian Journal of International Law*, 9(2), 359–391.
- Coupet, M., & Mayer, T. (2007). Institutional determinants of Foreign direct investment. *Journal World Economy*, 30(5), 764–782.
- Dang, V.C., & Nguyen, Q.K. (2021). Determinants of FDI attractiveness: Evidence from ASEAN-7 countries, *Cogent Social Sciences*, 7(1). <https://doi.org/10.1080/23311886.2021.2004676>
- Deger, S., Lam, C., Sen, S., & Voicu, A. (2013, October). *Determinants of FDI-impact of natural barriers, regional integration and "behind-the-border" regulatory environment*. Paper presented at International Atlantic Association, Annual Conference, Philadelphia.
- Duce, M. (2003). Definitions of foreign direct investment (FDI): A methodological note. *Banco de Espana*. <https://www.bis.org/publ/cgfs22bde3.pdf>
- Egger, P. (2008). On the role of distance for outward FDI. *Annual Regional Science*, 42, 375–389.
- Eichengreen, B., & Irwin, D.A. (1995). Trade blocs, currency blocs and the reorientation of trade in the 1930s. *Journal of International Economics*, 38, 1–24.
- Fatema, H. (2014). *Regional integration and intra-regional FDI: The case of ASEAN*. (Unpublished masters' thesis, Department of Economics, Lund University, Sweden). <http://lup.lub.lu.se/luur/download?func=downloadFile&recordOID=4394439&fileOID=4394479>
- Fratianni, M., & Oh, C.H. (2009). Size of regional trade agreements and regional trade bias. *Applied Economics Letters*, 16(6), 1603–1606.
- Globerman, S., & Shapiro, D. (2002). Global foreign direct investment flows: The role of governance infrastructure. *World Development*, 30(11), 1899–1919.
- Gujarati, N. D. (1995). *Basic econometrics* (3rd ed.). McGraw-Hill, Inc.
- Hamid, I., Alam, M.S., Baig, I.A., & Jena, P.K. (2023). Nexus between institutional quality and foreign direct investment inflows: Panel data analysis of SAARC countries. *Journal of Knowledge Economy*. <https://doi.org/10.1007/s13132-023-01252-6>
- Hossain, M.I. (2015). Intra-regional trade, intra-regional FDI and economic integration: The South Asian perspective. *International Journal of Economics, Commerce and Management*, III (5), 203–228.

- Hill, H. & Menon, J. (2014). *ASEAN Commercial Policy: A Rare Case of Outward-Looking Regional Integration, Regional Economic Integration* (Asian Development Bank Working Paper No. 144).
- Jang, Y.J. (2011). The impact of free trade agreements on foreign direct investment among developed countries. *The World Economy*, 34(9), 1628–1651.
- Jaumotte, F. (2004). Foreign direct investment and regional trade agreements: The market size effect revisited. (Working Paper No. 04/206). International Monetary Fund website: <http://www.imf.org/external/pubs/cat/longres.aspx?sk=17770.0>
- Kaushal, L.A. (2022). Impact of regional trade agreements on export efficiency – A case study of India. *Cogent Economics & Finance*, 10(1). <https://doi.org/10.1080/23322039.2021.2008090>
- Kayam, S.S., & Hisarciklilar, M. (2009). Revisiting the investment development path (IDP): A nonlinear fluctuation approach. *International Journal of Applied Econometrics and Quantitative Studies, Euro-American Association of Economic Development*, 9(2). https://econpapers.repec.org/article/eaajaeqs/v_3a9_3ay2009_3ai_3a1_5f12.htm
- Krishnankutty, R. (2010). Testing the relationship between FDI inflow and outflow in India: A critical analysis (No. 48609). University Library of Munich, Germany.
- Kumar, J. (2022). Impact of regional economic integration on FDI in SAARC countries. *Journal of Accounting and Finance in Emerging Economies*, 8(2). <https://doi.org/10.26710/jafee.v8i1.2191>
- Leshier, M., & Miroudot, S. (2006). Analysis of the economic impact of investment provision in regional trade agreements. (Working Paper No. 36). [http://search.oecd.org/officialdocuments/displaydocumentpdf/?doclanguage=en&cote=td/tc/wp\(2005\)40/final](http://search.oecd.org/officialdocuments/displaydocumentpdf/?doclanguage=en&cote=td/tc/wp(2005)40/final)
- Liu, T. (2006, July 13–14). *Empirical study on the impact of regional trade agreements on strengthening China's FDI*. Paper presented at the ACESA 2006 Emerging China: Internal Challenges and Global Implications, Victoria University, Melbourne.
- Medvedev, D. (2006). Beyond trade: The impact of preferential trade agreements on foreign direct investment inflows (World Bank Policy Research Working Paper 4065). <http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-4065>
- Nunes, C.L., Oscategui, J., & Peschiera, J. (2006). Determinants of FDI in Latin America Documento De Trabajo 252 of U.S. firms. *Journal of International Economics*, 33, 57–76.
- OECD (2001, December 6). Glossary of statistical terms. <http://stats.oecd.org/glossary/detail.asp?ID=3127>
- Otieno, M., Moyi, E., Khainga, D., & Biwott, P. (2013). Regional integration and foreign direct investment in East African Countries. *Journal of World Economic Research*, 2(4), 67–74.
- Park, I., & Park, S. (2008). Reform creating regional trade agreements and foreign direct investment. *Pacific Economic Review*, 13(5), 550–566.
- Paul, B.R. (2017). *Handbook on negotiating sustainable development provisions. In preferential trade agreements*. United Nations Publication. https://www.unescap.org/sites/default/files/Handbook%20SD-PTA_final.pdf
- Rajan, R.S. (2008). Intra-developing Asia FDI flows: Magnitudes, trends and determinants. In H. Soesastro (Ed.), *Deepening economic integration. The ASEAN Economic Community and Beyond-*, ERIA Research Project Report 2007-1-2. Chiba: IDE-JETRO, 204–238.
- Rammal, H., & Zurbruegg, R. (2006). The impact of regulatory quality on intra-foreign direct investment flows in the ASEAN markets. *International Business Review*, 15, 401–414. <https://doi.org/10.1016/j.ibusrev.2006.05.001>

- Resmini, L. (2000). The determinants of foreign direct investment into the CEECs: New evidence from sectoral patterns. *Economics of Transition*, 8(3), 665–689.
- Resmini, L., & Siedschlag, I. (2008). Is FDI into China crowding out the FDI into the European Union? (ESRI Papers WP231). Economic and Social Research Institute. <http://www.esri.ie/pubs/WP231.pdf>
- Sahu, J.P., & Dash, S.K. (2021). What explains FDI inflows to ASEAN countries? Evidence from quantile regressions. *Journal of Asian Economic Integration*, 3(1), 25–37.
- Srinivasan, P. (2011). Determinants of foreign direct investment in SAARC nations: An econometric investigation. *The IUP Journal of Managerial Economics*, 3, 26–42.
- Stein, E., & Daude, C. (2007). Longitude matters: Time zones and the location of foreign direct investment. *Journal of International Economics*, 71(1), 96–112.
- Subasat, T., & Bellos, S. (2011). Economic freedom and foreign direct investment in Latin America: A panel gravity model approach. *Economics Bulletin* 31(3), 2053–2065.
- Thangavelu, S.M., & Narjoko, D. (2014). Human capital, FTAs and foreign direct investment flows into ASEAN. *Journal of Asian Economics*, 35, 65–76.
- Ullah, M.S., & Inaba, K. (2014). Liberalization and FDI performance: Evidence from ASEAN and SAFTA member countries. *Journal of Economic Structures*, 3(6), 1–24.
- Velde, D.W. te, & Bezemer, D. (2006). Regional integration and foreign direct investment in developing countries. *Transnational Corporation*, 15(2), 41–70.
- Yeyati, E.L., Stein, E., & Daude, C. (2002). Regional integration and the location of FDI. Inter-American Development Bank Working Paper no. 414. <https://doi.org/10.2139/ssrn.1818703>

Theoretical Contribution and Critical Analysis of Indian Dairy Sector: A Review on Sustainable Advantage in Milk Supply Chain

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Abstract

A milk supply chain (MSC) is an operational framework that integrates dairy farmers, suppliers, milk outlets, retailers and users to deliver the milk from the producer to end users. Domestic consumption of milk from 17.0 million tonnes (MT) in the year 1950 increased to 221.6 MT in the year 2022–2023 (Department of Fisheries, Animal Husbandry Dairying, 2023). Now the Indian dairy Sector has become the largest milk production country across the globe. This article aims to review an in-depth analysis of the selected literature corpus, providing a better understanding of a subject domain. More than 300 articles or research papers were retrieved from various journals of production engineering, clinical and medical journals on pertinent topics through academic literature and publishers and were systematically studied and classified. It also gives better insights about publications concerning possible issues related to the number of themes, sub-themes covered in individual journals, future scope, the methodology adopted, number of methods used and publication trends. The literature suggests that milk intake helps prevent various health ailments, contrary to other non-epidemic diseases in humans. Inclusive authors discuss the literature on the trade-off between sustainability and risks or challenges in the MSC.

Keywords

Milk supply chain, sustainable advantage, review of literature, non-epidemic diseases

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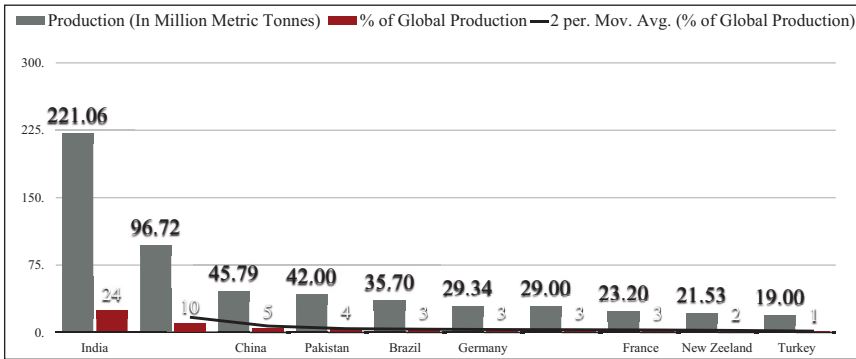


Figure 1. Global Ranking of Indian Dairy Sector in Milk Production.

Source: Food and Agriculture Organisation Statistics, 7 February 2023; milk production across top ten countries world.

Introduction

According to the annual report of the UN, Food and Agriculture Organisation (2022–2023), the Global ranking India procures the highest production of 24% this year. Since the 1970s, most of the expansion in milk production has been reported in South Asian countries, which mainly contribute to the growing economy of developing countries such as India, Pakistan and China, following developed nations as market leaders (FAO; DHAD, 2023) as seen in Figure 1.

Historical Background

In the ancient times and Vedic age, past historical data is evident that the Indian subcontinent is an agro-based country where production and usage of milk as a food substitute begins from the oldest Indus Valley Civilisation c. 3300–c. 1300 BCE, also mentioned in the Rigveda scripture in around 1700 BCE.

Emergence of the Indian Dairy Sector

In the early years of independence, the Indian dairy sector recorded that milk production declined to 1.64% and 107 grams daily. Operation Flood, Known as the ‘White Revolution’, was initiated under the flagship of pioneer leaders such as Sardar Vallabhbhai Patel, Morarji Desai and Lal Bahadur Shastri, framed progressive policies and set up a National Dairy Development Board (NDDB) to curb down the monopoly of milk producers and exploitation of dairy farmers. Operation Flood aims to transform the milk deficiency era into the most prominent world milk producer until the 21st century.

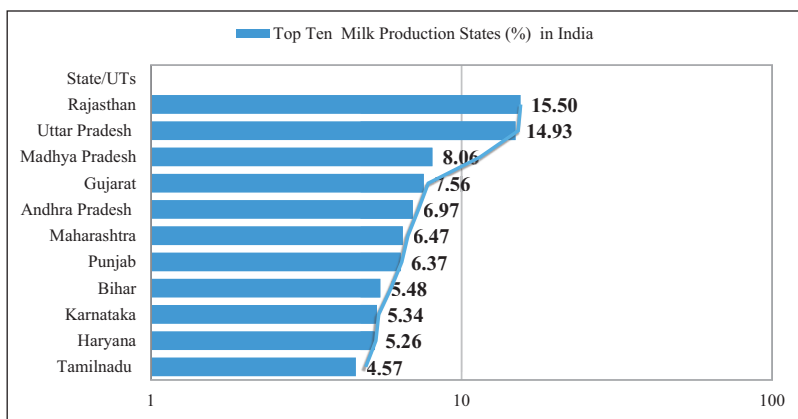


Figure 2. Statistics on Milk Population per Capita Availability in India.

Source: FCCI Report 2022–2023; Department of Animal Husbandry, Fisheries and Dairying, Gol.

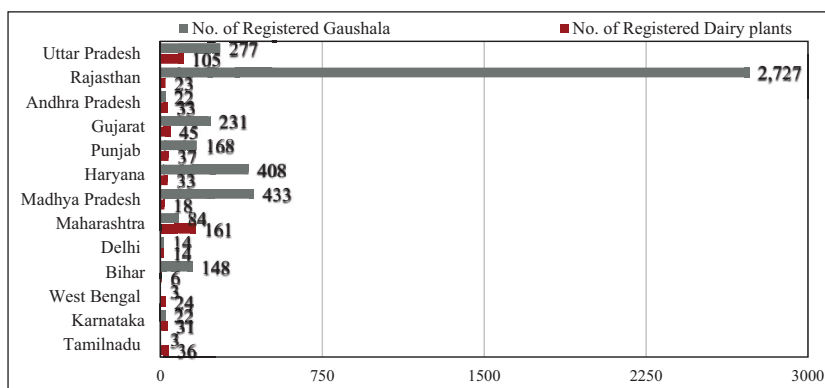


Figure 3. Statistics on Registered Milk Dairies/Companies and Gaushala in Major States.

Source: Animal Board of list of India, www.awbi.in; September 2022.

Present Scenario of Indian Dairy Sector

Milk and dairy enterprises are the significant sources of income in rural markets where the per capita level of milk availability reached a group of 444 grams of milk per person a day. Rapid urbanisation and remarkable growth in the disposable income of households, changing lifestyles, education level, infrastructure development, expansion of the rural market and technological advancement are some of the indicators that directly influence the production of milk and dairy products in the past few decades.

As seen in Figure 2, in the Indian dairy sector, Rajasthan has the highest percentage of milk production of 33 million tonnes (MT), followed by Uttar Pradesh and Other states (DHAD Report, 2022–2023), respectively.

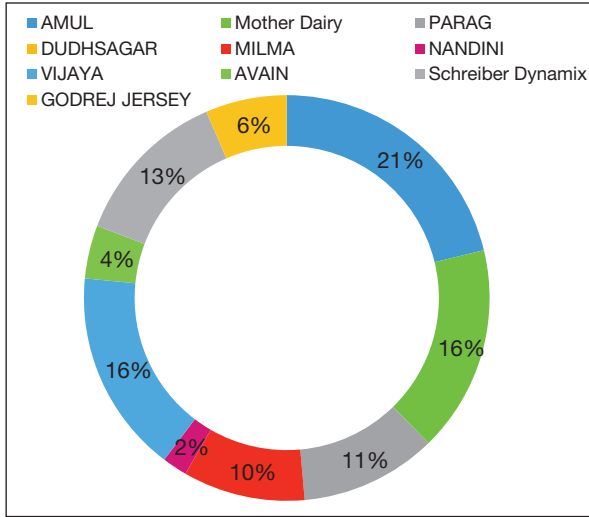


Figure 4. Market Share of Leading Dairies in the Indian Dairy Sector.

Amul started as a brand as a milestone in the history of the dairy sector in 1946. After independence, it became a market leader with an annual revenue of 6.5 million US\$/year and 85% of the market share.

Indian milk supply chain (MSC) has immense potential and capabilities to diversify the product specification by adding value. Amul, Mother Dairy, Parag, MILMA and other prominent companies in the formal dairy sector. Milk is a raw product that transforms into other derivatives or substitute products like processed dairy items such as butter, cheese, ghee, buttermilk, condensed milk, cream and packaged milk.

Organisation Structure of Indian Dairy Sector: Amul India

The organisation framework of the Indian dairy sector comprises a three-tier system: Village Society, District Society and State Federation as seen in Figure 4.

At a functional level, the dairy cooperative society (DCS) is formed by milk producers or farmers collecting the milk at a common platform to create groups and committed to selling milk only at the district level after becoming a member of the cooperative society. Each DCS acts as a milk collection centre, where members supply milk daily, and payment is made based on a percentage of fat and SNF per kg of the milk provided. Stakeholders of the cooperative societies received the annual profits incurred by the DCS.

The second level is the processing level, where producers or dairy processors form a union at the district level. This union is responsible for logistics and procurement activities in the MSC to create product value-addition. District union also provides a range of services to farmers, such as veterinary services, feed supplies, and services like artificial insemination to sustain growth in milk production.

At a state level, the cooperative milk producers' union is responsible for formulating marketing strategies for branding and labelling products, manufacturing feed for livestock, and other farming-supporting union activities.

Amul is the most trusted brand among Indian households. It started with the conscious movement to uplift the underprivileged section of society to transform their socioeconomic status. It also generates a job avenue and entrepreneurship in rural areas of India, such as Gujarat, Rajasthan and Maharashtra, where there is a scarcity of resources for livelihoods due to adverse climatic conditions.

The innovative and Visionary approach of Dr Verghese Kurien, Founder of Amul Dairy, commercialised, institutionalised, and technically supervised the processing of indigenous dairy products and launched them in the International and domestic markets to expand the Agro-food Industry.

Key Drivers of MSC and Dairy Processing

Indian dairy sector has the progressive growth in the past few decades, in India milk processing and supply chain activities are carried out at a local level of business model, where the gaushalas and milk cooperatives are the key players of unorganised dairy sector.

The total country milk production from milch animals is 137,365 million metric tonnes (MMT) and the total number of indigenous cows is about 26% among all breeds of milch animal species in India. From the national statistics ABI, 2022 as seen in Figure 5, Rajasthan is the highest milk production state with the highest number of registered gaushalas and dairies.

Literature Review

This article reviews and highlights the main theories explained in the dairy sector. It also explored topics and identified the gaps still existing in the literature. From the review, a taxonomy to determine which research stream would be most congruent to a specific research topic. Systematic literature review (SLR) can be performed by abstracting and indexing journals and published or unpublished bibliographies initially. Academic journals, conference proceedings, government reports and books must be tapped depending on the nature of the problem. The objective of SLR is also to evaluate the validity and quality of existing work against a criterion to reveal weaknesses, inconsistencies, and contradictions in existing MSC. Systematic Review in tabular format as seen in Table 1, is to understand the historical background of the Indian dairy sector and explore the segmentation of milk and dairy products.

Dairy Market and Farming Policies

In the global market, Business enterprises and the manufacturing sector are looking towards their core competencies to gain competitive advantage and manage their sources to evaluate internal and external value-adding activities.

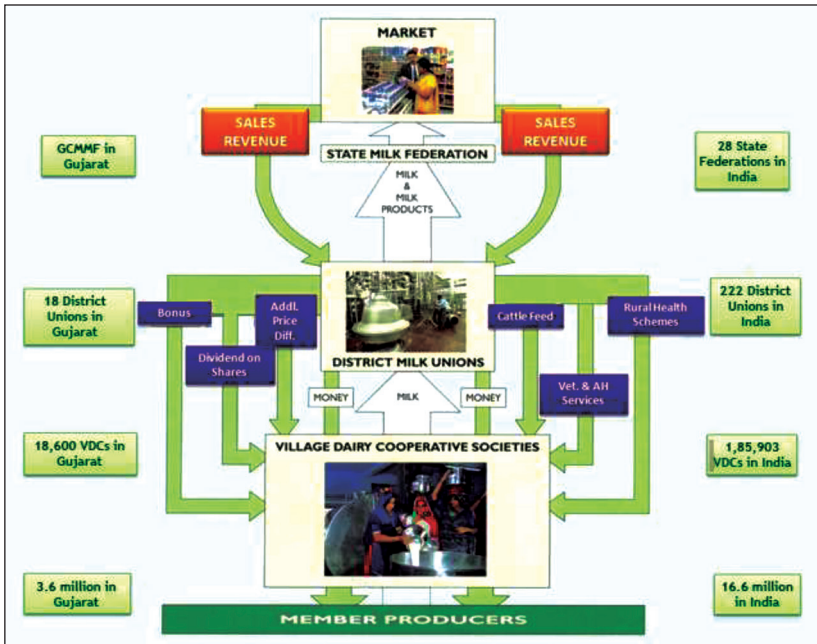


Figure 5. Statistics on Registered Milk Dairies/Companies and Gaushala in Major States.

Source: Animal Board of list of India, www.awbi.in; September 2022.

The Indian dairy market is projected to expand from 124.93 billion to 227.3 billion in forthcoming years with a Compound Annual Growth Rate of 8.94% and valued at USD 115.57 billion in FY 2021–2022 (Kumar, 2014). Demographic composition of formal and informal Indian dairy sector and its Stakeholders is seen in Figure 6. India ranked lowest for affordable milk price with \$0.70 litre daily, producing countries worldwide. Despite leading milk production, India has yet to become the world's largest exporter. European countries have the largest market share in the world with flexible export subsidies contrary to the Government of India's restricted export of milk powder and casein because of escalating the price of milk and dairy products in the indigenous market (Ramphul, 2012). Indian dairy farmers and producers proportionately belong to small and medium land size holders, and nearly 60% of dairy farmers engaged in the unorganised dairy sector, attributed to low-class income groups, rural households and conservative milking and farming processing (Squicciarini et al., 2017). Private dairy companies are nearly 17% as compared to registered cooperative societies in various states of India. MSC involves production, transportation, processing, packaging and storage as seen in Figure 5.

Sustainable Aspects of Dairy and MSC

Compared to other agro-business and processing sectors, MSC's simple supply chain framework begins with raw milk collection from suppliers to end users.

Table 1. Major Review of Published Articles/Research on Producer Perspective on Indian Dairy Sector and Indigenous Species in Milk Production.

Author	Year	Methodologies	Findings	Future Implications
Ozcan Sahin, Saim Boztepe, İbrahim Aytekin	2018	Exploratory and secondary data sources on various cross-breed A1 and A2 alleles across the Asian and European continents.	Supporting the farmers producing A2 milk, contribute to the national economy by reducing the additional costs of	There is a need to promote export of cross-breed produce A2A2 genotype through artificial insemination.
Markus, Kroll and Rustagi Divesh	2017	Experimental study, primary data-milk market, vendor, milk outlets, community and household in Delhi. Multi-stage samples.	A strong correlation exists between milk quality & norms of honesty, measured using a novel behavioural experiment.	Developing economies are dominated by the informal sector and weak enforcement of rules.
P. Ravi Kanth Reddy, A. Nagarjuna Reddy, et al.	2016	Exploratory and secondary data sources, literature review on indigenous & exotic cows.	Indigenous dairy animals containing A2 variant in India have positive health effects compared to cross-breed cows.	There is a need to inform about the quality and purity of milk for human benefit.
J. Bell, Gregory T. Grochoski and Andrew J. Clarke	2006	Secondary data and descriptive statistics.	Dairy products contain gluten appear to be responsible for increasing the risk of neurological disorders such as	Further scope of research to understand the role of government agencies in making policies on health risk due to type A1 Variant containing BCM-7

Sustainability is crucial in managing efficiently due to wastage and milk losses as products are perishable and have short life spans (Kazancoglu et al., 2018).

Challenges and Risks Involved in MSC

Indian dairy and milk processing sector encountered a problem with disparities in infrastructure facilities, unfair trade practices, disproportionate market segmentation, quality aspects of product delivery system, high input dairy farming cost, logistics issues, dominance by key market players in the organised sector and low awareness among farmers and dairy processors (Kumar, 2014). The existing organised milk marketing structure needs to be upgraded to handle the

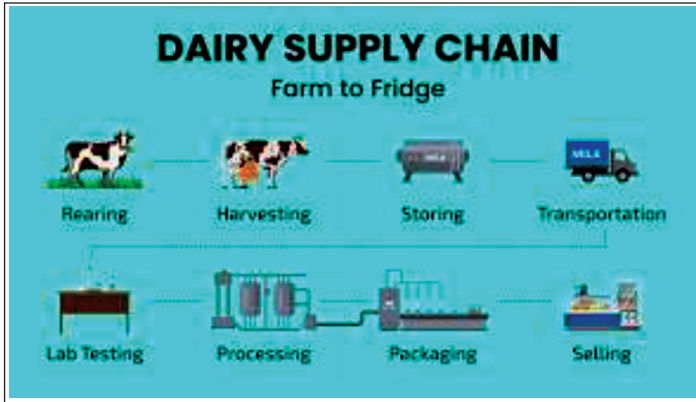


Figure 6. Organisational Structure of AMUL Dairy Sector.

Source: Statistics on Gujarat Cooperative Milk Marketing Federation Ltd. (GCMF) ; AMUL INDIA, 2023.

resource availability and adoption of technological advancement in the breeding system of indigenous cattle species across the country with uniformity and consistent farming practices. Flourished states gain competitive advantage and sustainable economic development (Kale et al., 2016).

Imbalances in Livestock Population and Its Production in MSC

According to the 20 livestock census year 2019, the population of total bovine species is 299.98 million, among which 193.46 million are cattle and 109.85 million are buffalo. Out of the total population, with a hike of 5% annually and a total global share of 23.67%. The overall milk production of the cattle herd is higher than other bovine species, with a growth rate of 1.34 between 2012 and 2019. There is continuous milk production with various types of cattle species found in India adaptable to climatic conditions and sustainable towards health diseases across the country.

Milk: Health Impacts and Its Relevance as Food Constituent

Milk is considered an essential part of the regular diet and possesses high nutritional value and specific unique complex biological fluid, bioactive components such as proteins, lipids, carbohydrates, minerals and vitamins with multifaceted functionality in the gastrointestinal tract. In recent years, with the increasing demand for superior quality products and its brand value diversifying the customer expectations and satisfaction level in India, the usage of milk has been shifting from traditional dairy products to value-added and sustainable milk products.

Table 2. Statistics on Indian Demographic Population of Non-communicable Diseases; Dietary System and Lifestyle Pattern.

Average No. of Patients in India	Past Trends	Recent Trends	Men	Women	Age Group	Rural	Urban
Overweight and obesity in India	2.2%	5.1%	3.2%	6.4%	15–49	27.6%	33.8%
Cardio-vascular patients	15% deaths (1990)	28% deaths (2018)	3.21%	2.25%	30–39	5%	12%
Cancer patients	979,786 cases	1,148,757 cases	200,100	195,300	30–69	95% deaths	70% deaths
Hypertension patients	12%–15%	29.8%	47.5%	48.4%	35–59	25%	45%
GDP contribution in health sector (Economic Survey Report 2020–2021)	1.5%	1.8%				14,935 average monthly household expenditure (OPP)	24,436 AMHE

Source: ICMR Annual Report (March 2019–2020); Ministry of Health and Family Welfare Survey Report 2018–2019, Lancet 2019 Report, Economic Survey Annual Report 2020–2021, NCAER Report 2019.

Epidemiological research is evident that there is a substantial incremental growth in non-epidemic diseases such as obesity in children under the age of 14, diabetes, hypertension and Cardiovascular diseases, as seen in Table 2 due to sedentary lifestyles and poor dietary system, in milk and dairy products, the tractability of hardness chemical composition and bacterial formation due to low freezing points incidents the problem of adulteration and contamination (Hoque & Sukanta, 2019).

Consumer Pattern and Preferences

Consumption of milk and dairy products is attributed to their nutritional value and healthy lifestyle. Awareness and perceptions of essential items and dairy products depend upon their quality, price and consumption level. Income, education and social class are some observed demographic characteristics influencing buying patterns.

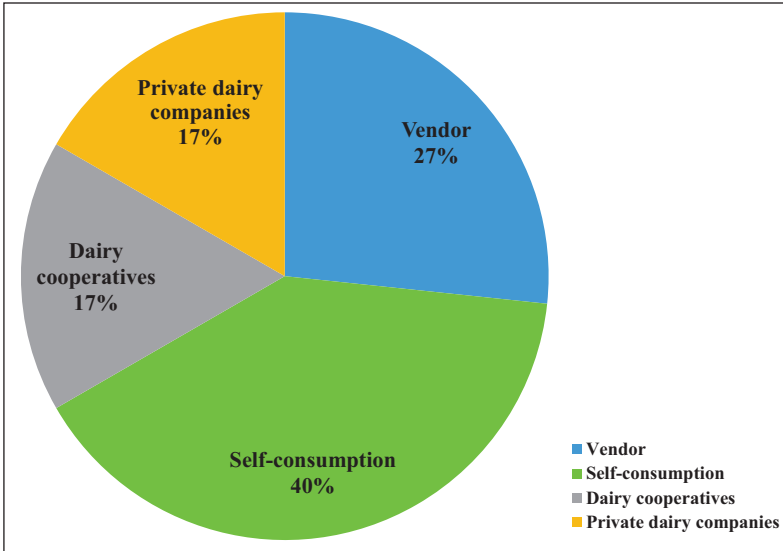


Figure 7. Demographic Proportion of Indian Dairy Sector.

Source: Ministry of Agriculture and Farmers Gol; Indian Dairy Products Reports, June 2019–2020.

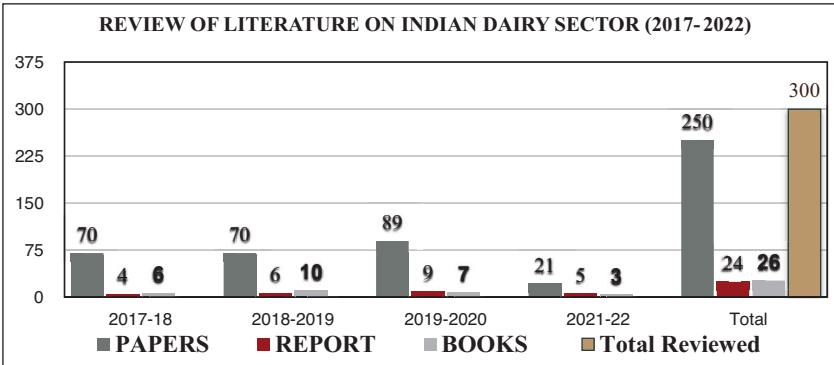


Figure 8. Graphical Representation in Chronological Order of Review of Literature on Indian Dairy Sector from 2017 to 2022.

Cow milk and dairy products possess health benefits, are helpful in nourishment, strengthen bones and teeth, and boost immunity. Individuals’ consumption patterns depend on their choice and preferences for specific products and services despite their health benefits. Different age groups have different food intake levels and reinforcement focusing on milk and dairy products. Packaging and promotional activities also influence the buying patterns among other age groups. Quality of milk and cost-effectiveness stimulate product demand and increase the consumer base.

Motivation for Research

This study contributed to the proposition in the present context for food constituents and the assertion about the dairy and food processing industry. This study draws attention to the sustainable aspect in the MSC for understanding the Consumption and Production pattern. With the help of a SLR, it develops deep insights into the current research within MSC management and contributes to the wellness of mankind.

Theoretical Framework

Theoretical framework is based on existing theory that describes the constructs, principles, concepts and research perspective. In the context of this study, some of the behavioural theories has been explained as follows:

The theory of planned behaviour (TPB) is important to understand the role of decision-making ability of an individual. It also acts as an effective tool to make choices among various alternatives in a planned manner influenced by past experiences and future expectations of an individual. This theory explains the cognitive factors such as motivation, attitude and purchase intention of milk consumers.

Research Design/Methodology/Approach

This article examines reviewed and peer-reviewed academic journals from 2000 to 2019 on a systematic approach for conducting an extensive literature review to discover knowledge about indigenous cow milk through three philosophical assumptions; ontology, epistemology and axiology.

This article investigates and reviews the literature available from journals (reviewed/peer-reviewed) articles, case studies, surveys and annual reports on agriculture and dairy sector of concerned statutory bodies and agencies in Indian context. Data sources are gathered from published information from various databases and research search engines. For this paper review of literature (ROL) explores the period of 2017–2022, and includes a total of 300 papers It helps to identify theoretical and methodological gaps in the ROL.

Discussion

From the previous literature it is evident that milk is considered a wholesome diet and an essential part of human dietary and lifestyle patterns. Milk and its derivative products are applicable for the treatment of various health ailments. Challenges encountered in MSC are to ensure delivery of qualitative milk and value-added products to customers. providing better infrastructure for milk collection and

logistics systems. Indian dairy is an agro-based business sector, whose primary functions and economic activities are performed by union and state governing bodies under the Ministry of Agriculture contributing to 26% of total agriculture growth domestic product (GDP).

Government initiated various Dairy Development Schemes (DDS) to boost the dairy farmers /processors to develop better pre- and post-harvest agribusiness infrastructure that facilitates better and qualitative products, procurement and logistics facilities to maintain an efficient supply chain. Government also promotes start-ups and digital programmes schemes as per farmers' needs at local and national levels.

Operational and functional activities of MSC in contrast to its risks and key drivers involved in MSC. It is important to understand the issues related to hygiene and maintenance of dairy farms, protection of milch animals and cattle species. Adoption of better Supply Chain Management Practices (SCMP) and ensure their role in increasing the production level. Formulation of stringent policies and guidelines to maintain the quality standards for the implementation and effectiveness of government DDS.

Findings and Conclusion

The literature review addresses some significant issues in the milk and dairy supply chain based on the fast chain model, which is directed towards the logistics and procurement activities in business processes. Quality and safety for processing milk and dairy products along a supply chain stage depend upon perishability and optimum utilisation of resources at the preceding step. Consumers' willingness to pay depends on the quality, price, health and safety aspects of milk and dairy products. The availability of local dairy products in informal markets requires the development of efficient mechanised systems and low-cost packaging solutions to increase their shelf life and make them price-competitive. Stakeholders should sanitise themselves about technological advancement in agribusiness to boost the economy in organised and unorganised sectors. They must invest more in research to develop new dairy products for domestic and global markets. Government financial support for innovative techniques is required to establish efficient processing capabilities to minimise losses and reduce the carbon footprint in this dairy processing industry.

Declaration of Conflicting Interests

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References

- Hoque, M., & Sukanta, M. (2019). Safety of milk and dairy products. *Food Safety and Human Health*, 5, 127–143.
- Kale, R.B., Ponnusamy, K., Chakravarty, A.K., Sendhil, R., & Mohammad, A. (2016). Assessing resource and infrastructure disparities to strengthen Indian dairy sector. *Indian Journal of Animal Sciences*, 86(6), 720–725.
- Kanth Reddy, R., Nagarjuna Reddy, A., Ramadevi, A., & Srinivas Kumar, D. (2016). Nutritional significance of indigenous cow milk with regard to A2 B-casein—An overview. *International Journal of Science, Environment and Technology*, 5(5), 3376–3380.
- Kazancoglu, Y., Ozkan-Ozen, Y.D., & Ozbiltekin, M. (2018). Minimising losses in milk supply chain with sustainability: An example from an emerging economy. *Resources, Conservation and Recycling*, 139, 270–279. <https://doi.org/10.1016/j.rescon-rec.2018.08.020>
- Kumar, R. (2014). Dairy supply chain management (DSCM) practices: An imperative solicitation. *American Journal of Nutrition and Food Science*, 1(2), 17–24. <http://10.12966/ajnfs.04.01.2014>
- Ramphul, O. (2012). Global competitiveness of Indian dairy sector. *Electronic Journal*, 59(5), 215–223. <http://dx.doi.org/10.2139/ssrn.2797987>
- Squicciarini, M.P., Anneleen, V., Janssen, E., & Jo, S. (2017). Supply chains and economic development: Insights from the Indian dairy sector. *Journal of Food Policy*, 68, 128–142. <http://dx.doi.org/10.1016/j.foodpol.2017.01.003>
- Susanty, A., Puspitasari, N.B., & Prastawa, H. (2020). Exploring the best policy scenario plan for the dairy supply chain: A DEMATEL approach. *Journal of Modelling in Management*, 189, 285–291. <http://dx.doi.org/10.1108/JM2-08-2019-0185>

A Study on the Use and Effectiveness of Accounting Software Systems in Enhancing the Business Performance in Mumbai

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Abstract

Accounting software is used by organisations to record their day-to-day financial transactions, which include fixed assets management, expense management, revenue management, accounts receivables, accounts payable, etc. The major problem faced by the users is misperception in using the software for their day-to-day accounting and business needs. The biggest problem for accounting software users is unsuitable accounting packages and apps which has inadequate and unauthorised data. Many firms and organisations do not take correct decisions based on fundamentals due to a lack of information and use of the right accounting software. The question arises of how to select the right accounting software for the business and what are the factors influencing the decision-making process for business performance. We collected data from accounting software users from different firms/organisations and found that accounting software is used majorly in the age group of 20–40 years. SAP, Tally and Algol are the prime software used for recording purposes. Reliability, data quality and ease of use are considered while selecting the software. As per the survey, accounting software helps in increasing profitability, improves productivity and helps in reducing costs.

Keywords

Accounting software, profitability, cost control, financial transactions

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Introduction

Accounting plays a very important role in day-to-day operations of a business by recording the daily monetary transactions of business activities. All business organisations try to monitor their financial information and records which can be used in various decision-making activities of the business. Accounting helps in tracking the incomes and expenses of the business, providing quantitative financial information to the stakeholders and even ensuring statutory compliance of the business.

Changes in information technology (IT) have made organisations keep pace with accurate and up-to-date accounting records. Accounting software helps organisations to keep all financial information updated with immediate access to real-time, accurate financial data. It provides visibility into operational performance and the company's financial health. Accounting software helps to create reports quickly and easily. It also helps in increasing functionality, improved accuracy, faster processing and better external reporting of overall business performance.

Accounting software has evolved to meet the demands of a digital world, and the cloud has been key to this transformation. This has improved back-office accounting software to a comprehensive, mission-critical and integrated solution designed for innovation. As companies encounter many new disruptive forces and competitive pressures, these cloud-based accounting systems resolve the problems and enable them to achieve financial strength.

Literature Review

Patricia (2022) studied the effect of a computerised accounting system (CAS) on the organisational functioning of oil and gas firms in Nigeria. Amahalu Nestor NDUBUISI (2017) assessed the CAS and manual accounting system of quoted microfinance banks in Nigeria. Wickramsainghe (2017) discussed the clarity in using accounting software by the intended users which is suitable based on their day-to-day accounting and business needs. Yvonne Chong (2018) tried to investigate and explore the impact of accounting software on the business performance of Malaysian firms. KUMAR (2019) examined to help the firm owners and managers understand the importance of using accounting information systems to achieve business performance. The result showed that accounting software has an impact on business performance. Cragg (2002) found that the alignment of an IT strategy with business strategy increased a firm's performance. The synchronisation of organisational structure with IT structure improves business performance. Sam (2012) conducted a study on Melaka's small- and medium-sized businesses' adoption of CAS. However, there has not been any published research examining how accounting software features affect how well business' function.

Donggo (2021) examined and investigated the reasons for utilising AIS on a firm's functioning. The researcher used several attributes such as efficiency, reliability, ease of use, data quality and accuracy to find out the impact and suggested that dimensions of utilising AIS are significant for improving the performance of business organisations. Daru (2016) talked about the role of accounting software in recent scenarios. He discussed the advantages and benefits of accounting software for business transactions which help in quick reporting and easy processing and storage of financial information. The paper displayed the most recent developments in small- to medium-sized firm accounting information systems. In an effort to better understand how IT affects accounting processes, Maziyar Ghasemi (2011) made this attempt. The capacity of businesses to create and employ computerised systems to monitor and record financial activities has the greatest influence, according to the report. The amount of time that accountants need to compile and deliver financial information to management has decreased because of IT networks and computer systems.

Much past research has shown that accounting information system adoption does increase a firm's performance, profitability and operations efficiency in Malaysia, Finland, Spain, Iran and Pakistan. New computer tools and information society enabled companies in Turkey to effectively use their accounting system in dealing with customers and suppliers. Nzomo (2013) indicated that there exists a relationship between AIS, an effective decision-making tool and organisational performance.

Thottoli (2021) aimed to determine the influence of knowledge and use of accounting software among small and medium entrepreneurs (SMEs) in Oman by using a qualitative approach. The study used a purposive sampling method and revealed that the knowledge of accounting software has a significant effect on its use and knowledge. Generalised or customised accounting software can be used to make it more effective. Hawkar Anwar Hamad (2021) discussed the significant contribution of SMEs in the country's economic development. The progress of technology has an impact on all businesses, highlighting variable costs, business size, infrastructure, management support, external environment and perceived ease of use being important considerations. Yagnesh Mohan Dalvadi (2017) focused on the importance of accounting in an organisation's position and maintaining the same is very important. Nowadays, every company maintains accounts in digital format with the help of accounting software. The paper discussed several reasons and different motives behind using computerised accounting. Kayigamba (2015) focused on the impact of CAS on the financial reporting of the ministry of local government in Rwanda. The study evaluated the use of the accounting system by the ministry for generating qualitative and reliable financial reports. The study also talked about the benefits of accounting systems for the end users in getting quick financial transactions and other services. The study recommended constant and continuous training for the finance and accounting staff by the authorised dealers. Boateng (2021) evaluated the impact of the use of accounting software on the processing of financial information by taking convenient sampling. The study found that there is a positive relationship between the use of accounting software and the efficiency of processing financial

information. The study says that accounting software is used for undertaking all accounting activities and is accepted by employees. It helps in the skills and expertise of employees, cost-benefit analysis and decision-making.

Research Gap

After doing a literature review on papers related to accounting software, we found that many studies are conducted on the use of accounting software by firms in different countries using parameters such as ease of use, cost-effectiveness, reliability, accuracy, etc. However, little research is carried out in India to assess the impacts of accounting software use on the performances of the firms. Therefore, this study is an attempt to fill this gap.

Objectives of the Study

1. To study the use and effectiveness of accounting systems by firms in Mumbai.
2. To study the parameters influencing the selection of accounting software.
3. To study the impact of accounting systems in enhancing business performance.

Hypothesis

1. H_1 : There is a significant relationship between ease of use on business performance.
2. H_2 : There is a significant relationship between effectiveness on business performance.
3. H_3 : There is a significant relationship between software reliability on business performance.
4. H_4 : There is a significant relationship between the price of the software on business performance.
5. H_5 : There is a significant relationship between data quality on business performance.

Scope of the Study

The main purpose of this study is to help firms in selecting the right, cheap and user-friendly accounting software to record their day-to-day transactions systematically. Good accounting software will provide accurate and timely reports with better results for the organisations, which will help them in making crucial business decisions about the firm and its future.

Research Design

The study has used both primary and secondary data sources. A questionnaire was prepared to collect the primary data containing details of accounting software used by firms in Mumbai. It was sent to approximately 130 respondents who are using accounting software. Out of 130 respondents, 87 answered the questionnaire and based on their responses the analysis is done.

The study also includes interviews with a few selected working professionals.

Secondary data for the study are collected from different websites, research journals, articles, books, etc.

Dependent variables: Business performance (profitability, accountability, productivity and cost control).

Independent variables: Ease of use, effectiveness, software reliability, price of the software and data quality (Figure 1).

Ease-of-use and business performance: The success of an accounting system depends on the level of ease-of-use and its benefits in the work. The user should understand the system easily and should have a positive influence on the output quality of the business.

Cost-effectiveness: Cost is an important factor when using accounting software. The speed and efficiency of accounting software go hand-in-hand with reducing the overall costs. The accounting system helps to reduce the number of work hours, which can also reduce the accounting department's payroll and administration costs. Accounting software helps with tedious calculations and other quantitative tasks in much easier ways.

Software reliability: Accounting software helps in producing reliable data, which is very helpful in planning, identifying and controlling business operations. An essential characteristic of accounting data is reliability, which measures how

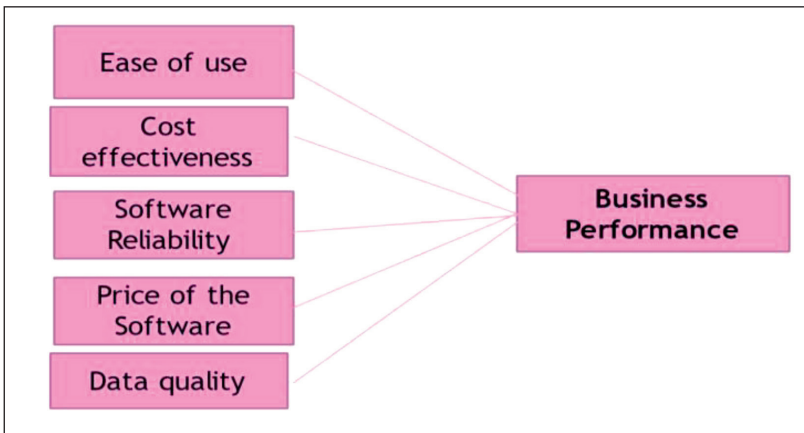


Figure 1. Characteristics of Accounting Software.

accurate, error-free and faithfully represented the data are so that they can be utilised to make critical decisions.

Price of the software: The price of the software is based on the features of the software and a company selects software as per its day-to-day usage. Accounting software drives down costs and enhances the efficiency of a business. It increases the productivity of the company's personnel and benefits the company by becoming more cost-effective.

Data quality and business performance: Data are very important and critical for any business. The performance of any business depends on the output, which itself is the result of data quality. A firm needs data, processes of data production take place through data collection, and proper data utilisation and storage of data is required for satisfactory performance of the organisation. Incomplete and erroneous data would hurt a business's ability to compete since they might have a negative impact on decision-making and, as a result, the performance of the firm.

Data quality in the research is used for measuring accuracy, completeness, validity, consistency, uniqueness, timeliness and fitness for purpose. It ensures the company makes data-driven decisions and meets their business goals. Duplicate data, missing values and outliers, if not addressed properly, may increase the risk for the business and have negative outcomes.

Research Methodology and Technique

To check the reliability, Cronbach's alpha test model is used in the study. It shows that all questions are highly reliable to analyse. It also indicates the better internal consistency of each question which is used to measure the variable. All the means and standard deviations show that the data set is normally distributed with no outliers or missing values. This research used multiple regression analysis using SPSS.

Limitations

- Sample size is small.
- Selected parameters are used for the study.
- The study is general in nature.

Data Analysis

Demographic Analysis

The distribution of the respondents' demographics is shown in Table 1. 41% of respondents were men, whereas 59% of respondents were women. The information gathered indicates that more women are employed and utilised accounting

Table 1. Demographic Study.

Variables	Measures	Frequency	Percent
Gender	Male	51	59
	Female	36	41
Experience in using accounting software	<1 year	16	18
	2–5 years	19	22
	>5 years	52	62
Service in current Firm	Up to 5 years	17	19
	6–10 years	45	52
	11–15 years	25	29
Firm used computerised system	Yes	87	100
Firm used computerised data recording	Yes	82	94
	No	5	6
Software used by the current firm	SAP	23	79
	Tally	6	21

Table 2. Descriptive Statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
Business performance	87	3	5	4.10	0.598
Ease of use	87	3	5	4.40	0.632
Effectiveness	87	3	5	4.89	0.508
Software reliability	87	3	5	4.30	0.616
Price of the software	87	2	5	4.01	0.701
Data quality	87	2	5	4.12	0.645

software. Data indicated that young people between the ages of 20 and 30 utilised an accounting computer system. Fifty-two respondents in total had more than 5 years of experience with accounting software. The demographic profile also revealed that all businesses adopted CAS, with more than 90% using these systems to record data. With 23 businesses utilising it, SAP was the most widely used accounting software in India, followed by Tally in six firms.

Descriptive Analysis and Normality Analysis

One dependent variable and five independent factors make up this study. Business performance is a dependent variable, and it is assessed using data quality, software pricing, software dependability and simplicity of use (Table 2).

Table 3. Cronbach's Alpha Coefficients.

Constructs	Number of Items	Cronbach's Alpha
All variables	42	0.973
Business performance	8	0.912
Ease of use	7	0.858
Effectiveness	7	0.805
Software reliability	8	0.899
Price of the software	6	0.821
Data quality	6	0.873

According to the descriptive study, dependability, efficacy and simplicity of use all contributed to improved company performance, with respective means of 4.40, 4.89 and 4.30 and standard deviations of 0.632, 0.508 and 0.616. Software cost and data quality, which have respective mean values of 4.01 and 4.12 and standard deviations of 0.701 and 0.645, are two more significant independent factors having little impact on business performance. Since all of the means are positive, the data set is excellent.

Reliability Analysis

Reliability is a test that helps to ensure the overall consistency of measures. It is tested by Cronbach's alpha. The generally accepted rule describing internal consistency is as follows: excellent > 0.9; good > 0.8, acceptable > 0.7; questionable > 0.6; poor > 0.5; unacceptable < 0.5. Table 3 shows all the constructs in this research are reliable. All the variables (dependent and independent) chosen for the study have Cronbach's alpha scoring of above 0.80, indicating all variables are acceptable with high internal consistency.

Regression Analysis

To determine the influence of accounting software on business performance based on five independent variables—ease of use, efficacy, software dependability, price of the program and data quality—this research used multiple regression analysis in SPSS. In this study, company performance is the dependent variable. The entire research model's significance in achieving the desired outcome is demonstrated by the regression model.

The model summary (Table 4) shows the R as 0.853, R^2 shows the impact of accounting software on the business performance of firms in India as 0.713 and adjusted R^2 is 0.692, which shows that the measure of variability of accounting software can be predicted by the independent variables of ease of use, effectiveness, data quality, software reliability and price of the software. In normal cases, the

Table 4. Regression Model Summary.

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Durbin–Watson
1	0.853	0.713	0.692	0.33184	1.543

Table 5. Coefficient.

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (constant)	0.406	0.318		1.271	0.209		
Ease of use	0.429	0.097	0.454	4.456	0.046		
Effectiveness	0.365	0.103	0.657	5.453	0.001		
Software reliability	0.389	0.076	0.564	4.547	0.048		
Price of the software	0.057	0.102	0.087	0.756	0.465		
Data quality	-0.090	0.093	-0.098	-1.103	0.276		

healthy relationship between dependent variables and independent variables should be more than 60%. As we have found the relationship is more than 60%, this model is found to be a good fit. Finally, the Durbin–Watson is found to be 1.543, which clearly indicates no autocorrelation amongst the chosen sample. This value should be between 1.5 and 2.5, which indicates that each sample is separately independent and is not influenced by the other samples.

Hypothesis Testing

Table 5 shows that the hypothesis testing for the independent variables based on the significant value from regression analysis conducted using the SPSS tool. The standardised beta coefficients show the influence of independent variables on the dependent variable (Table 6).

The table demonstrates that software dependability, effectiveness and usability have moderate and substantial impacts on company performance, with respective *p* values [Sig.] less than 0.05 of 45%, 65% and 56%. Therefore, if software stability, usability and convenience of use improve, so will company performance. However, as the *p* values [Sig.] are more than 0.05, data quality has a minor

Table 6. Conclusion of Hypothesis Testing Results.

Hypothesis	Beta Coefficients	Significant ($P < 0.05$)	Decision	Interpretation
H_1 : There is a significant relationship between ease of use on business performance.	0.454	0.046	Accepted	The simplicity of use has a 45% positive influence on company success, as indicated by the beta value of 0.454.
H_2 : There is a significant relationship between effectiveness on business performance.	0.657	0.001	Accepted	The efficacy has a 65% favourable impact on corporate success, according to the beta coefficient of 0.657.
H_3 : There is a significant relationship between software reliability on business performance.	0.564	0.048	Accepted	The beta coefficient of 0.564 shows that software reliability has a 56% favourable impact on business success.
H_4 : There is a significant relationship between price of the software on business performance.	0.087	0.465	Rejected	The beta coefficient of 0.087 shows that price of software has 8% positive impact on business performance.
H_5 : There is a significant relationship between Data quality on business performance.	-0.098	0.276	Rejected	The beta coefficient of -0.098 shows that data quality has a -9% negligible impact on business performance.

influence of -9%. The price of the software's standardised coefficient of beta, which is 8%, indicates that it has a favourable effect on business performance.

The R^2 -value is 71%, while adjusted R^2 -value is 69%, according to multiple regression analysis. Given that the model's p value is 0.04—less than 0.05—when the confidence interval's 95% is taken into account, we may infer that the model is statistically significant.

The effects of each independent variable on the dependent variable (business performance) are depicted by the beta coefficients.

With p values less than 0.05, it can be seen that software reliability, cost-effectiveness and ease of use each have a moderate impact on business performance. It also demonstrates a favourable association between corporate success and ease of use, software dependability and cost-effectiveness. As a result, improving these elements will boost business performance.

Data quality and the cost of the programme, however, only slightly affect the impact on business performance as p value is greater than 0.05.

Apart from the above analysis, a few accounting professionals in their interviews also talked about the benefits of using accounting software like getting financial results at a single click, accuracy of data, saving of time, reduction in costs, etc. Accounting software also helps with procurement of material and material management and covers all the accounting processes, which makes it easy for the users.

Challenges Faced by Users of Accounting Software:

- *It is not easy for beginners:* Users find it difficult to use as they are not given proper training before implementing the software and using it.
- *Lack of efficiency:* Some users find this time-consuming as the software is not user-friendly. They also lack features, capabilities, expanded abilities and compatibility.
- Users of accounting software found it very stringent.
- Software requires continuous support and maintenance, which is difficult in real situations.
- *Lack of security:* Users feel a lack of security of their data as it is accessible by other parties.
- *Poor speed of access:* Since accounting software is accessed over the internet, delays are likely to happen due to the distance to the data centre (location problem). Speed issues can also be determined by the speed of processors and servers used to run the online accounting software.
- *Software compatibility:* Many users feel the software is not compatible with their programs. Users cannot import or retrieve information from other programs because their accounting software does not have the capability to do so.

Conclusion

This study was done to find out how accounting software affects Indian companies' commercial performance. To determine the effects of independent factors (ease of use, efficacy, software reliability, price of the program and data quality) on the dependent variable (business performance), regression analysis was used. All of the variables—dependent and independent—selected for the study have Cronbach's alpha scores over 0.80, suggesting that they all have a good level of internal consistency. Out of the five independent variables, the regression analysis revealed that three (ease of use, software reliability and cost-effectiveness) have a substantial impact on company success. In contrast, it was discovered that none of the other two variables—data quality nor software price—had a major effect on company success. In conclusion, accounting software systems are very significant

and valuable to organisations, enterprises and the economy. Users of accounting software benefit from lower costs, reliable data, time savings and speedy financial reports for decision-making.

Research Contribution

Selection and use of accounting software help the organisation to generate financial reports and save time. With the help of accounting software, companies can get accurate and fast data in a synchronised manner. The study shows that the most preferred accounting software is SAP and Tally because of its ease of use, reliability, accuracy and cost-effectiveness.

Future Scope

In the future, studies can be done by analysing other accounting software covering more sample sizes from different industries. A detailed analysis should be done on which software is preferred by the companies and why. Research can be done on a specific sector and challenges faced by the users of accounting software.

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References

- Amahalu Nestor Ndubuisi, A.M.-F. (2017). Comparative analysis of computerized accounting system and manual accounting system of quoted microfinance banks (MFBs) in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(2), 30–43.
- Boateng, C. (2021). Evaluating the impact of the use of accounting software on the processing of financial information. A case of Ghana Education Service, New Juaben Municipality.
- Cragg, P. B., King, M., & Hussin, H. (2002). IT alignment and firm performance in small manufacturing firms. *Journal of Strategic Information System*, 11(2), 109–132.
- Daru, M.U. (2016). Role of accounting software in today scenario. *International Journal of Research in Finance and Marketing*, 6(6), 25–34.
- Donggo, V.P. (2021). The effects of employing accounting software on business performance. Scribd.

- Esmeray, A. (2016). The impact of accounting information systems (AIS) on firm performance: Empirical evidence in Turkish small and medium enterprises. *International Review of Management and Marketing*, 6(2), 233–236.
- Hawkar Anwar Hamad, P.A. (2021). The influence of accounting software in minimizing business costs. *International Journal of Engineering, Business and Management (IJEEM)*, 5(5), 1–10.
- Kayigamba, S.M. (2015). The impact of computerized accounting system on financial reporting in the ministry of local government of Rwanda. *Journal of Emerging Trends in Economics and Management Sciences*, 6(4), 1–10.
- Kumar, J. (2019). The impact of accounting software on business performance of firms in Coimbatore district, Tamilnadu. *JETIR*, 6(5), 1–8.
- Maziyar Ghasemi, V.S. (2011). The impact of information technology (IT) on modern accounting systems. *Procedia: Social and Behavioral Sciences*, 28, 112–116.
- Nzomo, S. (2013). Impact of accounting information systems on organizational effectiveness of automobile companies in Kenya.
- Patricia, C.D. (2022). Effect of computerized accounting system on organisational. *British Journal of Management and Marketing Studies*, 5(3), 66–88.
- Sam, M.F. (2012). The adoption of computerised accounting system in small and medium enterprises in Melaka, Malaysia.
- Thottoli, M.M. (2021). Knowledge and use of accounting software: Evidence from Oman. *Journal of Industry-University Collaboration*, 3(1), 2–14.
- Wickramsainghe, D.P. (2017). Impact of accounting software for business. *Imperial Journal of Interdisciplinary Research*, 3(5), ISSN: 2454–1362.
- Yagnesh Mohan Dalvadi, H.R. (2017). A study on factors governing adoption of computerized accounting system in SMEs' of Gujarat. *International Journal of Research in Management & Social Science*, 5(3), 1–12.
- Yvonne Chong, I.N. (2018). The impact of accounting software on business performance. *International Journal of Information System and Engineering*, 6(1), 1–26.

A Review of Theoretical Frameworks for the Determinants of Growth of SMEs

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Abstract

Small- and medium-sized enterprises (SMEs) are undeniably the backbone of a country's manufacturing sector, with an inherent desire for export orientation, leading to the exponential growth of emerging economies. Digital technologies have been heralded as a solution for SMEs, to increase their productivity and competitiveness. The paper tries to collate various important theories that advocate digital innovations and promote internationalisation in SMEs. The research aims to examine how researchers use existing or a combination of theories to investigate various aspects that augment the growth of SMEs. This paper reviews how multiple theories complement one another by adding rigour and usefulness to the emerging research in the field of entrepreneurship. As some of the relevant theories are collated and analysed in one place, they provide academicians with a platform for analysing various determinants in the growth of entrepreneurial activities in SMEs.

Keywords

Theory building, entrepreneurship, technological theories, SMEs

Introduction

Small- and medium-sized enterprises (SMEs) are considered major contributors to a country's economic development, due to their ability to boost its productivity and living standards (Akingunola, 2011). According to Schumpeter (1935), SMEs are the primary source of entrepreneurship, innovation and technical progress, as well as key suppliers of human resources and raw materials to larger corporations. Sunusi (2002) observed that SMEs are the key engines of economic development,

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pillars of creativity and innovation and incubators of entrepreneurship, accounting for more than half of emerging countries' GDP. World Bank (2002) in their study observed that SME operations are labour-intensive and have a stronger capacity to create more jobs, easily adjust to changes because of their smaller size, and are more productive than huge corporations. According to Zubair (2014), SMEs can improve competition and entrepreneurial growth in less developed nations, due to economic efficiency, innovation and aggregate productivity development and are more efficient than large enterprises. As they run on shoestring budgets, they are more innovative, and entrepreneurially driven, but fragile, and are 'distress-pushed' (Ahmed, 2016). Because of their smallness and agility, they are more adaptable to cutting-edge technologies than large-scale industries. Despite the potential benefits of digital technology, SMEs are hesitant to embrace digital innovation or fail to reap the benefits of new technologies.

Various studies have investigated the individual, technological, organisational and environmental factors that influence digital technology adoption, and the results associated with it. This paper tries to analyse the theoretical contributions made by various scholars concerning the development of SMEs in the areas of entrepreneurship, technology, clustering and networking, internationalisation, the resource-based view, institutional theory, stakeholders' and agency theory, pecking-order theory and life-cycle-based theories for the understanding of adoption process of technologies and determinants of growth in SMEs. This will give a bird's eye view of frequently applied theories developed over years and will be extremely useful for upcoming researchers.

This article is categorised into four major sections. The next section examines the evolution of scholarly literature on SMEs. Various classical theories were discussed in the subsequent section, while the last section and its sub-sections focus on modern theories, analysing technological theories, stakeholders' theories and life-cycle theories.

Evolution of Academic Literature on SMEs

Various researchers have contributed a lot in the area of serious academic research in the field of SMEs and formulated various theories. Filley et al. (1976) defined a theory as 'an efficient mechanism for abstracting, codifying, summarizing, integrating, and classifying information'. Theories surrounding SMEs include the leadership qualities of an entrepreneur, variables that the entrepreneur can comprehend, influence and evaluate for the adoption of technologies, innovations, financial grievances and the behaviour of people working in a firm, focusing specifically on ethical behaviour (d'Amboise & Muldowney, 1988). Theories act as guideposts, indicating what is significant, why it is important, what determines this importance and what we should expect as a result. The research that is based on them can provide a fair evaluation of the data and any inconsistency might lead to inconclusive results. Authors while investigating new situations can add a new set of assumptions by revising the initial assumptions to arrive at new theoretical conclusions. Various academicians have developed several management theories,

which are beneficial for the growth of SMEs and are categorised into two major divisions: classical and modern theories.

Classical Organisation Theories

Classical theories were based on the literary works of Schumpeter (1942), Hoselitz (1959), Staley and Richard (1965), Kirzner (1999), etc. Classical theories emphasised the impersonal and rational nature of organisations, regulated by hierarchical levels of authority (Shafritz et al., 2005). In their study, Staley and Richard (1965) observed the predominance of SMEs in the least developed countries either due to the location of raw materials or the availability of cheap labour.

Hoselitz (1959), in his study on German industrialisation, noticed how smaller firms in the manufacturing sector later expanded into large-scale industrial institutions. He observed that low manufacturing costs were the key to SMEs' success. Parker (1979) and Khambata and Anderson (1981) expanded their works to study various developmental phases of SMEs and their transition from small enterprises to medium, and large enterprises. According to classical theories, huge firms will take over smaller firms as the economy progresses, to increase their revenues, making the SMEs gradually fade away (Onakoya et al., 2013).

The economists, philosophers and policymakers of the post-war century, such as Schumpeter (1935) and Galbraith (1967), were more confident of the development in the hands of huge corporations rather than by small enterprises and were convinced that they would eventually fade away because of their inefficiencies in the future. Schumpeter (1942) focused on the importance of huge corporations, which act as economic growth engines, through their non-transferable knowledge in certain technological sectors and markets. Schumpeter's (1942) growth theory focused on entrepreneurs, innovations and long waves, 'creative destructions' played by a dynamic entrepreneur, or massive research by R&D-based corporations, which act as driving factors behind structural and radical changes. According to Penrose (1959), large corporations are more capable of influencing their environments than smaller ones, as they have better resource positions. According to Penrose (1959), huge corporations may not want to eliminate smaller competitors, as they produce small supplementary items that are not cost-effective for them to manufacture.

Modern Organisational Theories

Since the 1980s, there has been great growth in technological advances, innovations and changes in entrepreneurial activities all over the world as a result of globalisation. This resulted in the emergence of a significant amount of literature on entrepreneurship, innovation and technology (McAfee & Brynjolfsson, 2008). As such modern theories focused more on the importance of entrepreneurial talents, innovative skills, digitalisation of the firms, network

subcontracting, economic benefits of agglomeration and clustering for the development of SMEs.

Entrepreneur–Innovation Theory

Toulouse (1979) defined an entrepreneur as an individual who takes significant risks towards the developmental activities of a company. According to Drucker (2014), innovation is a specialised tool used by entrepreneurs to bring changes in organisations or various services through the installation of new types of equipment, and cutting-edge products, to improve the efficiency of services and product quality. Innovations aid in increasing productivity, creating jobs, generating income, improving infrastructure and aiding in ease of living (Laforet, 2013). They provide improvised goods and services, with the assistance of efficient technologies, timely availability of financial resources and highly qualified personnel (O’Sullivan & Dooley, 2008). Hessels and Terjesen (2008) observed that higher degrees of entrepreneurial skills are positively correlated to the exporting by companies.

Kirton–Adaptation–Innovation Theory

Kirton (1976) proposed the Kirton–Adaptation–Innovation (KAI) theory of bipolar concept, which focused on improvising, less disruptive and more readily acceptable ideas, or path-breaking, transformative, more disruptive and less readily acceptable ideas at the other end of the paradigm. Garcia and Calantone (2002) identified that radical innovations enable SME owners to use new technology, resulting in new market infrastructure, generating previously unidentified consumer demand, to stay ahead of the competition. While incremental innovations fine-tune and improvise the existing technology by adding additional features, benefits, or enhancements to existing products (Garcia & Calantone, 2002).

Upper-echelons Theory

The upper-echelons theory (also referred to as the ‘top management team’ theory) was proposed by Hambrick and Mason (1984). It asserts that the managerial attributes of the top management determine the organisational outcomes. The upper-echelons theory is crucial since upper executives play a critical role in promoting organisational effectiveness (Hambrick, 2007). According to Hambrick and Mason (1984), entrepreneur education, organisational size, type and location, strategic decision-making, governmental support, vendor support, customer pressure and R&D are usually considered antecedents for SME growth (Tödtling & Trippel, 2005). SME owner characteristics include improved decision-making abilities, and an entrepreneurial mindset, which leads to increased levels of competitiveness, growth and profitability among exporters (Kazem & Van der Heijden, 2006).

Technological Theories

In a mature market, to attain a competitive advantage, SMEs should continuously upgrade their systems for a leaner, agile and more efficient approach. According

to Prananto et al. (2002), the rise of the internet has created a valuable opportunity for small businesses to reach out to new markets and increase customer satisfaction. Hamilton and Bowers (2006) and Earl (2006) regarded the internet as a tool for lowering costs, increasing efficiency, expanding the market and making social change, resulting in revenue improvement.

Since the 1990s, researchers focused more on studying digital technology adoption like computerisation and computer-based information systems by SMEs. In the 2000s, digital technologies such as ICT, the internet, websites, e-commerce, e-business and enterprise systems were widely adopted. This was followed by the adoption of cloud computing and knowledge management systems, social media adoption, etc., in the 2010s. The period 2015–2023 saw the emergence of new digital technologies such as Industry 4.0, blockchain technologies, drones, 5G technologies and sustainability in supply chains.

Numerous scholars have developed various technology adoption models to understand and verify the impact of the entrepreneur–technology–innovation paradigm, on SMEs' growth and development.

Diffusion of Innovations Theory

The theory of diffusion of innovations (DOI) is the oldest social science theory developed by Rogers (1962), for describing the acceptance or rejection of new technologies. Rogers identifies diffusion as 'a process to how quickly the innovation can be embraced by the members'. DOI theory can be seen more at the corporate level rather than at the operational level, according to Oliveira and Martins (2011). Figure 1 given below shows the influence of various constructs on the adoption of innovation as posited by Rogers (1995).

Rogers' diffusion model is represented through an innovation–adoption curve, where the population is categorised on risk aversion and risk propensity. They are segregated into innovators, early adopters, early majority, late majority and laggards. Rogers' theory is widely used in the theoretical framework for technology adoption and innovation diffusion and posits five attributes relative advantage, complexity, compatibility, trialability and observability to business intelligence to analyse the technological innovation adoption in SMEs (Boonsiritomachai et al., 2014).

Theory of Reasoned Action

Fishbein and Ajzen (1975), in their 'theory of reasoned action (TRA)', attempted to explain a user's intention to perform a behaviour (behavioural intention) through: (i) his attitude towards the behaviour and (ii) subjective norms regarding the behaviour. Behaviour is characterised by one's attitude towards it, and subjective norms refer to perceived social pressures from peers and family. According to Fishbein and Ajzen (1975), the acceptance of technology or its rejection, depends upon the perceived benefits to the user, or in its difficulty to understand or utilise it. Based on seven causative variables, the model shown in the Figure 2 predicts behaviour: behavioural intention, attitude, subjective norm, belief strength, evaluation, normative belief and incentive to comply (Liska, 1984).

Several scholars have used TRA theory to understand the behaviour intention towards brand loyalty (Ha, 1998) and green behaviour (Gotch & Hall, 2004) to study specific types of behaviours such as consumer behaviour (Fitzmaurice, 2005), green behaviour (Mishra et al., 2014) and predicting health behaviour (Gillmore et al., 2002; Godin & Kok, 1996) and for planning and implementing health promotion and disease prevention programmes.

Theory of Planned Behaviour

The theory of planned behaviour (TPB) developed by Ajzen (1991) is an extension of the TRA of Ajzen and Fishbein (1975) to overcome the flaws of TRA's behavioural intentions (Ajzen 1991). TPB was expanded further by introducing perceived behavioural control (PBC), based on Bandura's (1986) concept of self-efficacy. Self-efficacy is a person's expectation or confidence in his or her ability to master a behaviour or achieve a goal (Bandura's 1986).

Behavioural intention (BI) refers to 'an individual's willingness to perform a specific behavioural action, which is influenced by three important elements, perceived behavioural control, subjective norm, and behavioural attitude' (Ajzen, 1991). PBC refers to users' belief that he or she can do a behaviour of interest with ease or difficulty. We summarize the TPB framework in Figure 3.

TPB model is used in various healthcare studies to predict behaviour change theories, which include habitual smoking (Karimy et al., 2015), alcohol addiction (Cooke et al., 2016), family planning, health services utilisation (Javadi et al., 2013), patient safety (Javadi et al., 2013) and studies on breastfeeding, sex worker's safety, among others.

Technology Acceptance Model

Davis (1989) established the TAM, based on the TRA, which deals extensively with predicting the degree of IS adoption at the individual level and determining user acceptance (Surendran 2012). According to Agarwal and Prasad (1999), TAM is the most commonly used model to understand the intention for IS acceptance. The term 'perceived usefulness (PU)' was coined by Davis (1989), to define 'the degree to which a person believes that using a specific system will improve his job performance' and 'Perceived Ease of Use (PEOU)' to define 'the degree to which a person believes that using a particular system will be effortless'. According to Davis (1989), user attitude is directly affected by PU and PEOU. The TAM model was further extended by taking into consideration of external variables, which might influence the user's belief towards system usage. Figure 4 investigates the variables that influence the behaviour intention.

TAM theory was expanded on the concept of TRA to better comprehend customer behaviour, attitudes and intentions towards emerging technologies. It is frequently used in e-commerce adoption, e-learning adoption (Hsbollah et al., 2009), internet banking (Radomir & Nistor, 2013), mobile banking (Ahmad, 2018), etc. The TAM model was widely criticised for failing to provide sufficient insights into people's perceptions of innovative systems.

TAM-TPB Model

Taylor and Todd (1995) combined TAM and TPB theories to create the TAM-TPB model, which included predictor variables like attitude towards behaviour, subjective norms derived from TRA/TPB, PBC and PU derived from TPB. Figure 5 gives a detailed view of integrated TAM-TPB model.

Technology Acceptance Model 2

The TAM 2 model was proposed by Venkatesh and Davis (2000) to improve the TAM1 model for IS adoption. They tried to integrate social influence processes such as subjective norm, experience, perceived voluntariness (the extent to which potential users intend to adopt new technologies) and image (how the usage of innovation can improve one's status), with cognitive instrumental processes, like job relevance (the extent to which the innovation can improve the job performance), output quality (refers to an individual's perception of how well the system performs to complete specific tasks), result demonstrability (refers to usage results that can affect the system's usefulness) and PEOU. Figure 6 looks into the various constructs that influence individual's usage behaviour as proposed by Venkatesh and Davis (2000).

According to Venkatesh and Davis (2000), TAM2 favours all cognitive instrumental processes that favourably influence PU, which results in an individual's propensity to adopt an IS.

Technology, Organisation and Environment Framework

Tornatzky et al. (1990) introduced the technology, organization and environment (TOE) paradigm, which highlights the three aspects that impact an organisation's intention to adopt and use technological innovations. The technological context refers to the adoption of both internal and external technologies concerning the firm. Organisational context measures the top management support, availability of skilled employees and cost benefits. Environmental context considers facilitators and inhibitors for firm growth like competitive pressure, government support and sustainability. According to Oliveira and Martins (2011), the TOE model is frequently used in IT adoption studies to provide a framework for assessing the acceptability and assimilation of IT innovations. Figure 7 summaries the technological, organisational and environmental factors that influence the TOE framework.

Awa et al. (2017) extended the TOE's insights by combining task–technology–fit and UTAUT frameworks, to investigate higher-level attributes, instead of the ease-of-use behaviour of individuals in the organisation.

Unified Theory of Acceptance and Use of Technology

Venkatesh et al. (2003) combined key features from eight behaviour intention theories and models to predict or explain a person's BI to use technology to form the unified theory of acceptance and use of technology (UTUAT) model. After a thorough review of the literature, he combined the TRA (Davis 1989), the innovation diffusion theory (Rogers, 1995), the TPB (Ajzen 1991), the TAM

(Davis, 1989), the combined TAM-TPB (Taylor & Todd, 1995), the motivational model (Vallerand, 1997), the model of PC utilisation (Thompson et al., 1991), and social cognitive theory (Bandura, 1986) theories into the UTUAT model to explain IS usage behaviour.

The four key dimensions, such as performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions, were included to determine BI to understand how to use an IS, and its usage behaviour, varying with gender, age, experience and voluntariness to use, to moderate the impact of usage intention and behaviour (Venkatesh et al., 2003). PE, as defined by Venkatesh and Davis (2003), is 'the degree to which an individual perceives the system that aids in boosting work performance', while EE is 'ease with which an individual gets linked with the utilisation of the system'. PE, EE and SI all have a significant impact on users' behaviour intention in adopting new technologies. Figure 8 shows the four constructs and four moderators that influence the behavioural intention and predicting the usage intention of new technology by an individual.

Several academicians have studied the UTAUT model in depth to understand and explain the behaviour intentions towards the acceptance and utilisation of new technology. Some of them are mobile health adoption (Hoque & Sorwar, 2017), enterprise resource planning (ERP) (Keong et al., 2012) and software acceptance in SMEs (Chauhan & Jaiswal, 2016), etc.

UTAUT 2 Model

Venkatesh et al. (2012) extended the UTAUT 1 model to investigate the technological acceptance preferences of an individual, by adding three new drivers of intention, like hedonic incentive, price value and habit into the original model. In the UTAUT 2 paradigm, facilitating condition is the predictor of BI (Venkatesh et al., 2012). Hedonic consumer behaviour was associated with fun, enjoyment and excitement, while the emotional and experiential value of shopping, being more subjective and personal was attached to the hedonic value. Figure 9 predicts the technology acceptance using seven extended drivers of adoption intention as proposed in UTUAT2 model.

Several IS/IT studies have used some or all of the UTAUT2 (Venkatesh et al., 2012) constructs, like in the use of learning management systems (Ain et al., 2015), consumer acceptance of e-governance technology (Krishnaraju et al., 2013), availability of internet facilities to the residents of a city (LaRose et al., 2012), etc.

Networking and Clustering Approach

'Networking', as defined by Lechner et al. (2006), is a relationship between people or organisations that can serve a variety of purposes, while agglomeration of the interconnected enterprises and related firms is referred to as 'Clustering' (Ceglie & Dini, 1999). Figure 10 summarises the concept of networking theory.

The term 'network' refers to partnerships between businesses that work together to achieve a common economic goal by developing close relations with

customers, thereby complementing, and specialising to address mutual difficulties, to win markets that would have been too tough for them to reach on their own. Clusters are geographical and sectoral groups of enterprises that produce and sell a wide range of related or complementary goods and services and face similar challenges and opportunities. Several ancillary institutions, such as business-related organisations and technical or training service providers, are located near the clusters (Ceglie & Dini, 1999).

‘Clusters’ foster the development of value chains, private and public institutions, enhancing differentiation, which supports the local economic growth for specific raw materials, suppliers and the development of specific skill sets, which increases profitability (Humphrey & Schmitz, 1995). Networking activities assist in expanding businesses to gather resources for new endeavours, yet maintaining their flexibility (Demirgil et al., 2011). Networking can assist firms in overcoming constraints by allowing them to form ties with established businesses and reduce risk (Madhok, 1997). Networking can help SMEs compete on a global scale, by allowing them to form ‘symbiotic’ ties with larger companies Etemad (2004), while clustering of firms can assist in framing favourable governmental policies, which support regional or local economic development (Ceglie & Dini, 1999).

Ritter et al. (2002) emphasised that firms should not be considered in isolation but should be viewed as interconnected bodies. For SMEs with limited resources, clustering and networking ties can be useful in the establishment of collaborations with diverse stakeholders. Networking and clustering can be powerful tools for poverty elimination, for getting resources and opportunities and for motivating the growth of competing industries and the expansion of SMEs to venture into international markets.

Internationalisation Theory

Simmonds and Smith (1968) observed internationalisation as a significant variable for small businesses, resulting in a firm's growth, due to the aggressive and competitive nature, high-risk tolerance and export behaviour of an individual. Entrepreneurial talents, according to Hessels and Terjesen (2008), are positively associated with a company's exports. Pickernell et al. (2011) observed that graduate entrepreneurs are better export-oriented, and inclined towards the internationalisation of the firm than non-graduate owners, despite having no prior experience of owning/managing a business. According to Buckley and Casson (1998), internationalisation allows businesses to expand their activities worldwide through the vertical integration of their operations.

Dunning (1988) identified three benefits: (i) internationalisation benefits that a firm can achieve through its ability to organise and coordinate its operations; (ii) geographical or locational advantage of an institution; and (iii) advantage gained through the accumulation of intangible assets. According to Kazem and van der Heijden (2006), exporters improved their decision-making abilities by improving

their entrepreneurial orientation, resulting in more competitiveness, growth and profitability than non-exporters.

Institutional Theory

Institutional theory refers to the innovative elements associated with long-term growth of SMEs that inspire management to achieve their goals through cultural, legal, social, environmental, traditional or cultural and economic variables (Srisathan et al., 2020). The institutional setting influences the company's international behaviour, by supporting or hindering the process of internationalisation (Rutashobya & Jaensson, 2004).

Institutional network links can affect market selection and entry strategies, help lower costs and risks, provide access to established channels, increase credibility and can motivate internationalisation (Zain & Ng, 2006). Institutional theory affects the selection of variables that influence environmental, social and economic decision-making. An increasing number of SMEs throughout the world are aiming for sustainable business methods, which promise profit, resilience and social and environmental consequences (Caldera et al., 2017).

Resource-based Theory

A resource of a firm is considered as 'Everything that could be a firm's strength or weakness'. Gottschalk (2007) defines resources as 'tangible and intangible assets that have been linked to a firm for a long time'. According to Penrose (1959), a company derives its competitive advantage, through the use of its internal resources, i.e., its valuable tangible and intangible resources. According to Nguyen et al. (2008), resource-based theory gives guidelines to businesses on how to identify appropriate measures, overcome growth barriers, gain better access to technology, personnel, financial resources, natural resources and infrastructure, as well as market access. According to Rindova and Fombrun (1999), the resources, capabilities and core competencies of a firm pave the way for its competitive advantage in the marketplace. The resources, talents and core competences of a corporation pave the way for its competitive advantage in the marketplace (Rindova & Fombrun, 1999). Barney (1991) investigated how resources affect a single-business firm's performance. According to Grant (1991), four types of tangible resources influence a firm's success, financial, organisational, physical and technological resources, as well as three types of intangible resources: people, innovation and reputation of the firm's performance. As part of the VRIO paradigm, Barney and Wright (1998) established four resource attributes: (i) value, (ii) rarity, (iii) imitability and (iv) operability. The classification of resources that enhance a company's competitive advantage are shown in the Figure 11.

Barney (2001) extended the VRIO framework by expanding operability with substitutability, combination and exploration and making it into six. Wade and Hulland (2004) reconstructed value, rarity, appropriability, imitability,

sustainability and mobility as six attributes of a company's resources. They observed that some resources provide a competitive edge, while others assist in their maintenance. Gottschalk (2007) identified value, rarity, exploitability, imitability, substitutability, combination and mobility as the seven criteria to determine the level of competitive advantage provided by resources. Caldeira (1998) used RBV theory to understand how businesses achieve a long-term competitive edge and outstanding performance.

Many academicians investigated the relationship between IT resources and company performance. Many studies categorised IS resources into technology-based IS assets (infrastructure) and capability-based IS assets (systems-based).

Stakeholders' Theory

Stakeholders, according to Stanford Research Institute (1963), are 'those groups on which the organisation depends for its continued survival'. Freeman (1984) redefined stakeholders 'as a group or individual, who can influence or be influenced by the achievement of the firm's objectives'. According to Parmar et al. (2010), when the interests of stakeholder's collide, the entrepreneur strives to meet the demands of the stakeholders by giving benefit to each stakeholder. If trade-offs are to be made, then executives must first figure out how to improvise the situation for all parties (Freeman et al., 2008). Figure 12 shows the influence of various stakeholders on the performance of the firm.

Agency and Stakeholders Theory

Agency theory describes the relation between business owners and agents and aims to solve conflicts from a behavioural and structural perspective. Donaldson and Davis (1991) developed stewardship theory as a counterpart to agency theory to explain the relationship between firm ownership and management. Managers have a moral obligation, in accordance with stewardship theory, to maximise the company's revenue and offer decent returns to stockholders (Davis et al., 1997). In the principal–steward relationship, a steward prioritises the principal's interests over self-serving interests, whereas agents prefer opportunistic self-interested behaviour over optimising the principal's benefit (Davis et al., 1997). Agency theory, according to Chrisman et al. (2004), tries to explore specific difficulties of family firms, whereas stewardship theory, according to Davis et al. (1997), is primarily concerned with governance in the family business environment. The objective of stakeholder theory is to provide value to each stakeholder, whereas stewardship theory focuses on the organisation's long-term interests.

Pecking-order Theory and Trade-off Theory

The theory of the pecking order addresses the immediate needs of a firm's funding and provides a rational explanation for the choice. Myers (1984) proposed the pecking-order theory to explain the firm's preference for internal funds over

external ones, as well as its preference for debt issue over equity issuance. According to pecking-order theory, corporations do not have an optimal capital structure, but rather prefer a mix of funds based on manager preferences and the cost of each capital source. While the optimal capital structure is supported by the trade-off theory (Litzenberger & Kraus, 1973), which focuses on lowering the firm's weighted average cost of capital while optimising its value (Byoun, 2008). Banga and Gupta (2017) examined the capital structure of 64 small- and medium-sized businesses in India from 2007 to 2012 and observed that both theories complement each other.

Life-cycle Theory

Greiner (1972) proposed his well-known 'Greiner model' in life-cycle theories, explaining how extended periods of evolution are interrupted by 'revolutions'.

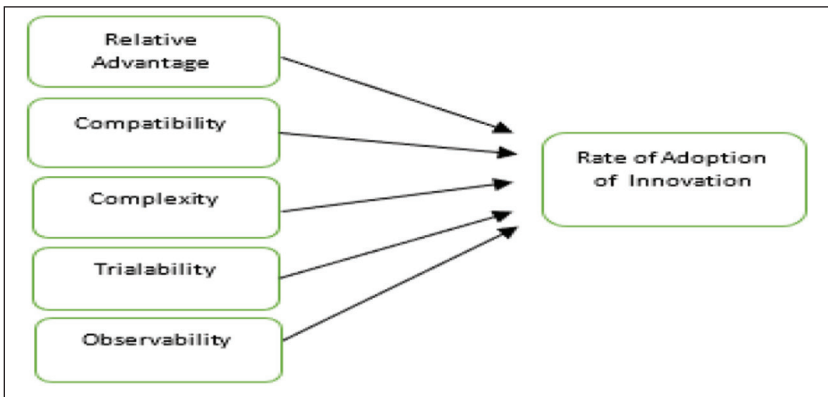


Figure 1. Diffusion of Innovations (DOI) Model.

Source: Rogers (1995).

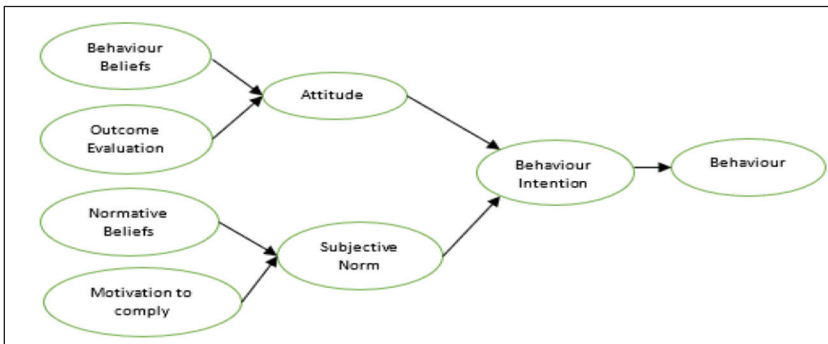


Figure 2. Theory of Reasonable Action (TRA).

Source: Fishbein and Ajzen (1975).

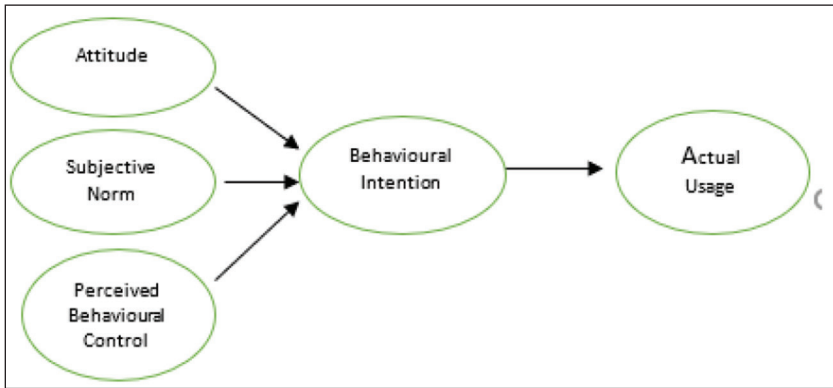


Figure 3. Theory of Planned Behaviour (TPB).

Source: Ajzen (1991).

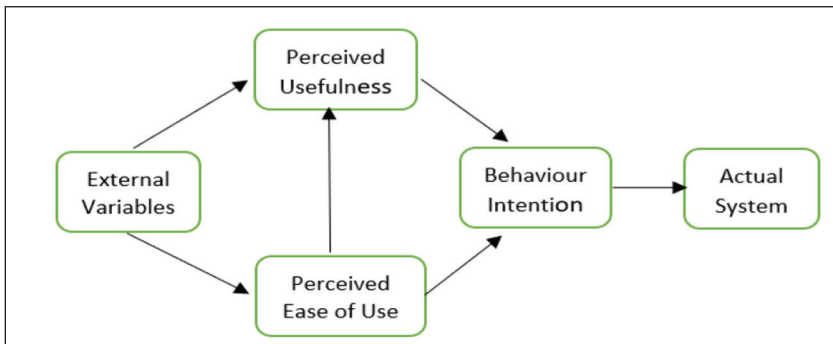


Figure 4. Technology Acceptance Model.

Source: Davis (1989).

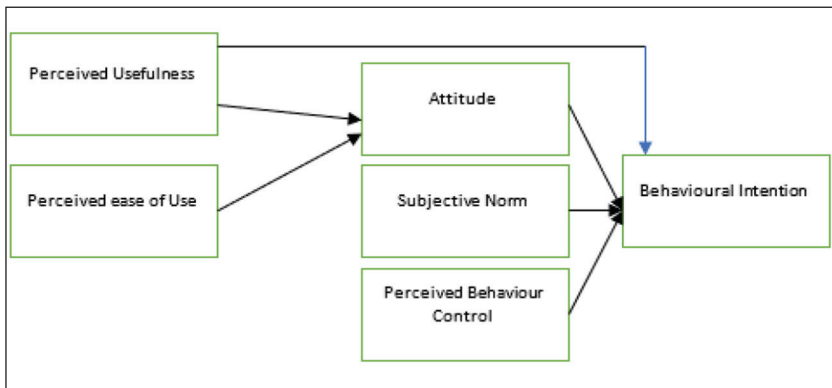


Figure 5. TAM-TPB Model.

Source: Taylor and Todd (1995).

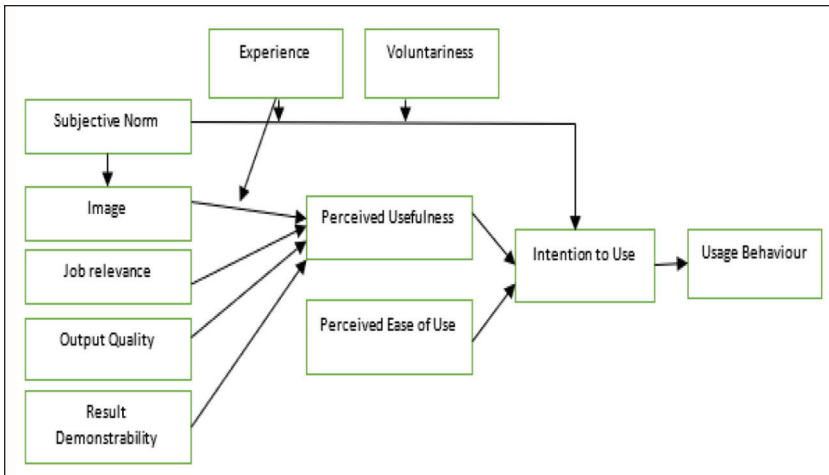


Figure 6. The TAM2 Model.

Source: Venkatesh and Davis (2000).

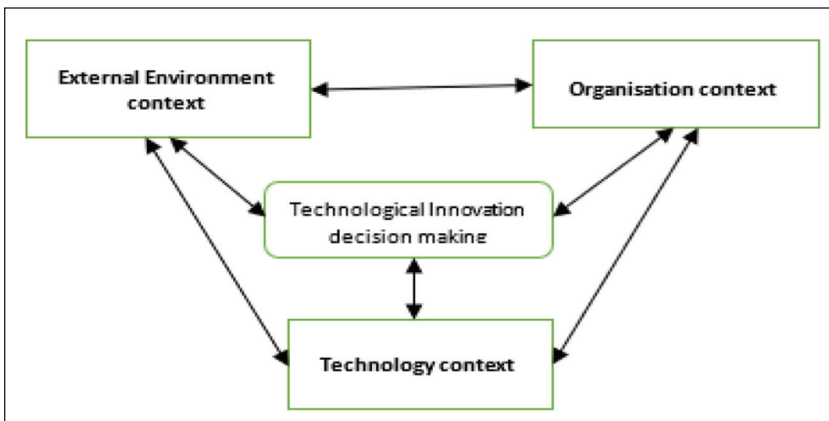


Figure 7. The TOE Framework.

Source: Tornatzky et al. (1990).

Miller & Friesen (1984) figured out that many studies have used a firm's life cycle, as a key area to analyse the dimensions of size, growth and development. According to Kazanjian and Drazin (1990) and Scott and Bruce (1987), growth models act as diagnostic tools, to assess a company's current situation and anticipate its requirement, as they move from one stage to the next in its life cycle. Most of the academic models divide an organisation's life cycle into four or five

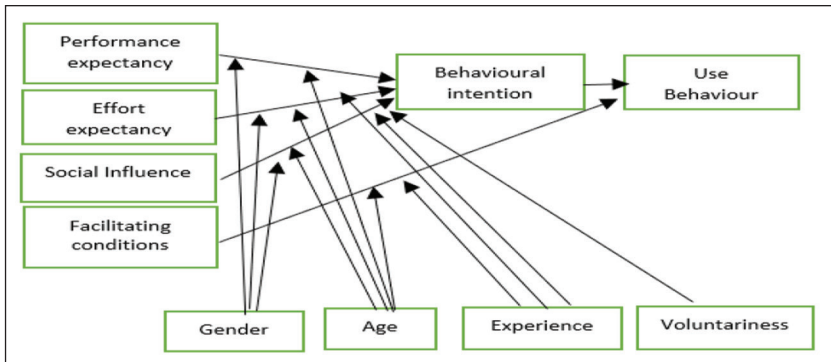


Figure 8. Unified Theory of Acceptance and Use of Technology (UTAUT).

Source: Venkatesh et al. (2003).

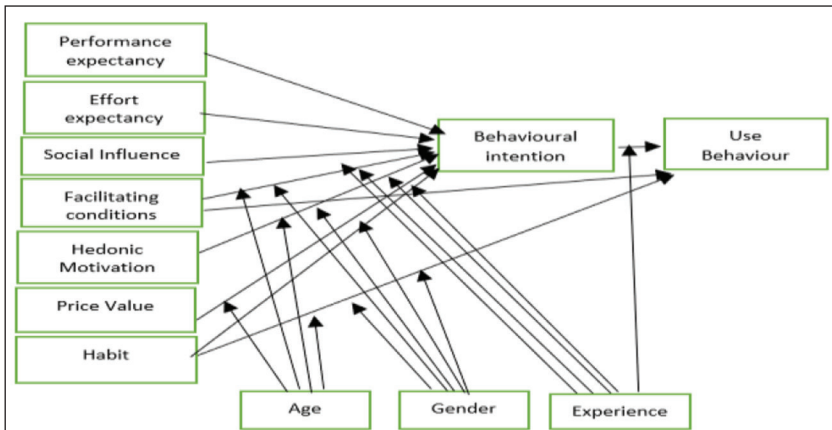


Figure 9. Unified Theory of Acceptance and Use of Technology2 (UTAUT2).

Source: Venkatesh et al. (2012).

stages, ranging from birth/existence/start-up, transiting to survival/early growth, leading to maturity, slowly declining and leading to death/revival with new ventures (Jirasek & Bilek, 2018).

Firms typically start as small and expand as they gain expertise. Smaller and younger firms face more turmoil than their larger counterparts as they grow. SMEs must explore new markets and produce new goods to attain long-term profitability. According to Scott and Bruce (1987), once SMEs start to grow, they either plateau off or enter new stages of expansion, transitioning from a small to a medium or even a large firm. According to Lewis and Churchill (1983), management may develop better strategies for the future, if they have a better

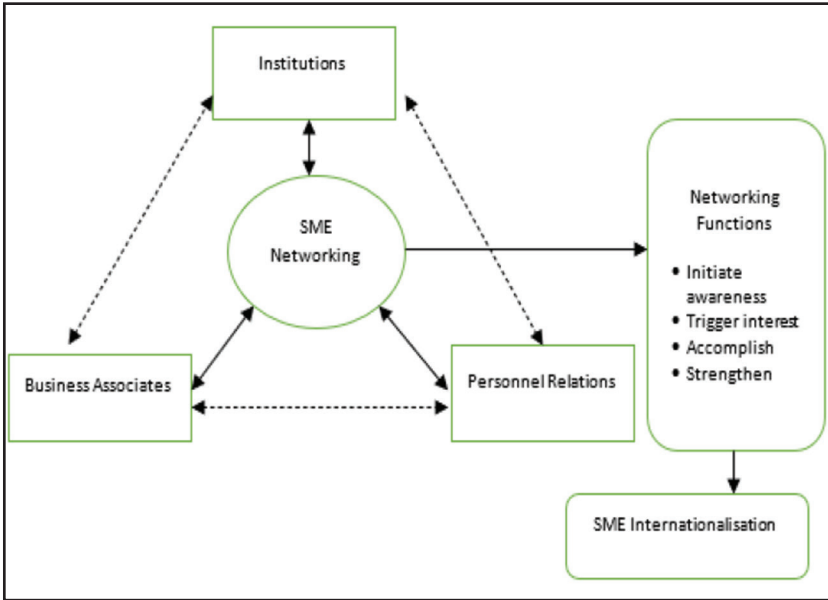


Figure 10. Networking Theory.

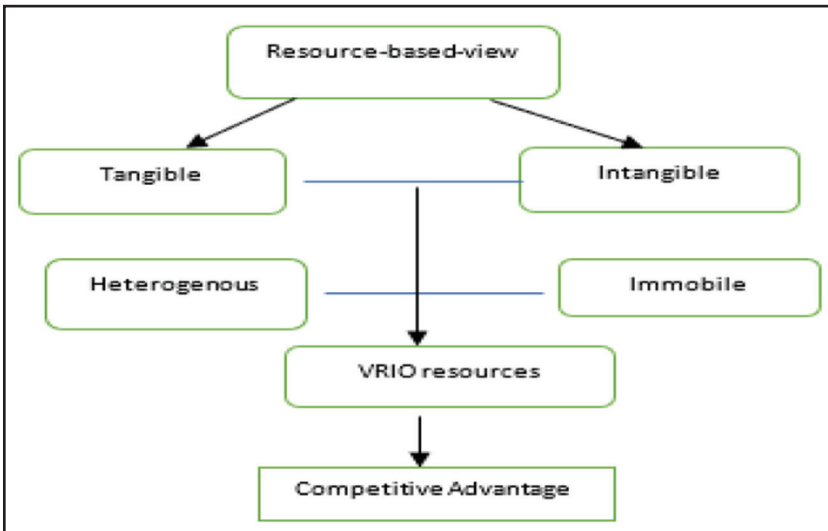


Figure 11. Resource-based Theory.

Source: Barney and Wright (1998).

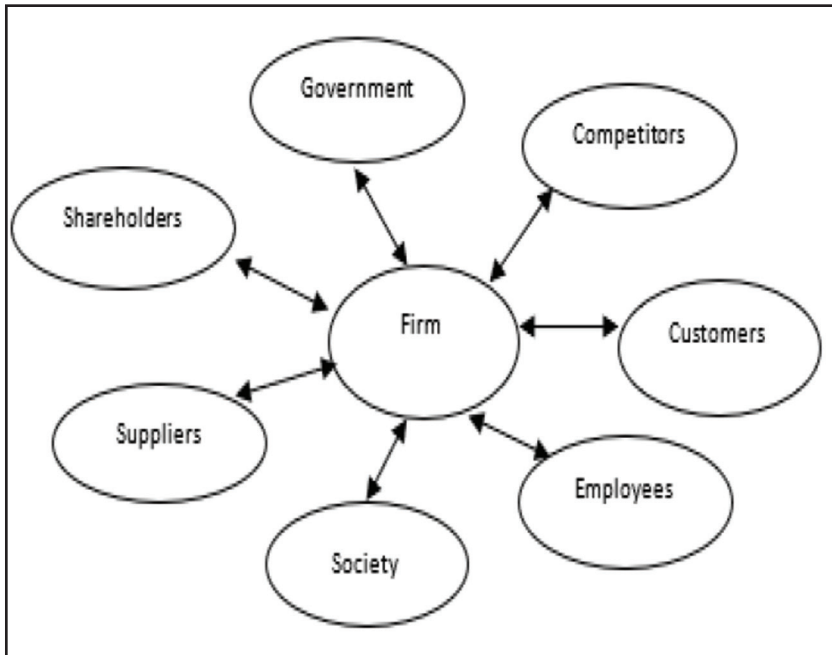


Figure 12. Stakeholder Theory.

Source: Freeman (1984).

awareness of the issues, challenges (present and future) and problems, they may face at each stage.

Conclusion

In a time when globalisation has an impact on both the global and local economies, innovation, technological improvements, resource orientation and networking are critical for SMEs to maintain a competitive advantage. The paper is limited only to a few theories and strategies, that researchers use to study various determinants for the growth of small businesses.

Various theories complement each other, adding rigour and usefulness to developing entrepreneurship research. Extensions of a particular theory can lead to more creative applications of the theory. It can also give policymakers a solid platform to build their strategies for nurturing, supporting and extracting entrepreneurial activities in ways that improve our quality of life. Theoretical understanding will help us gain new perspectives on the academic applicability of the determinants of the growth of SMEs.

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References

- Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, 30(2), 361–391.
- Ahmad, M. (2018). Review of the technology acceptance model (TAM) in internet banking and mobile banking. *International Journal of Information Communication Technology and Digital Convergence*, 3(1), 23–41.
- Ahmed, M.U. (2016). A theoretical framework for analysing the growth and sustainability of small and medium enterprises (SMEs). *International Journal of SME Development*, 2(2), 1–22.
- Ain, N., Kaur, K., & Waheed, M. (2015). The influence of learning value on learning management system use: An extension of UTAUT2. *Information Development*, 32(5), 1306–1321.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological Bulletin*, 82(2), 261.
- Akingunola, R.O. (2011). Small and medium scale enterprises and economic growth in Nigeria: An assessment of financing options. *Pakistan Journal of Business and Economic Review*, 2(1), 78–97.
- Awa, H.O., Ojiabo, O.U., & Orokor, L.E. (2017). Integrated technology-organization-environment (TOE) taxonomies for technology adoption. *Journal of Enterprise Information Management*, 30(6), 893–921.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall, Inc.
- Banga, C., & Gupta, A. (2017). Effect of firm characteristics on capital structure decisions of Indian SMEs. *International Journal of Applied Business and Economic Research*, 15(10), 281–301.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Barney, J.B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643–650.
- Barney, J.B., & Wright, P.M. (1998). *On becoming a strategic partner: The role of human resources in gaining competitive advantage*. *Human Resource Management*, 37(1), 31–46.
- Boonsiritomachai, W., McGrath, M., & Burgess, S. (2014 July). A research framework for the adoption of business intelligence by small and medium-sized enterprises. In *Proceedings of the 27th Annual Conference on Small Enterprise Association of Australia & New Zealand* (pp. 1–22). SEAANZ.

- Buckley, P.J., & Casson, M.C. (1998). Models of the multinational enterprise. *Journal of International Business Studies*, 29(1), 21–44.
- Byoun, S. (2008). How and when do firms adjust their capital structures toward targets? *The Journal of Finance*, 63(6), 3069–3096.
- Caldeira, M. (1998). *Understanding the adoption and use of information systems/information technology in small and medium-sized manufacturing enterprises: A study in Portuguese industry*. <http://hdl.handle.net/1826/4516>
- Caldera, S.T.H., Desha, C., & Dawes, L. (2017). Embedding lean and green practices into small and medium-sized enterprises to achieve sustainable business practices. *Proceedings of 18th European Roundtable for Sustainable Consumption and Production Skiathos Island, Greece*.
- Chauhan, S., & Jaiswal, M. (2016). Determinants of acceptance of ERP software training in business schools: Empirical investigation using UTAUT model. *The International Journal of Management Education*, 14(3), 248–262.
- Ceglie, G., & Dini, M. (1999). *SME cluster and network development in developing countries: The experience of UNIDO* (pp. 1-25). Vienna: Unido.
- Chrisman, J.J., Chua, J.H., & Litz, R.A. (2004). Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence. *Entrepreneurship Theory and Practice*, 28(4), 335–354.
- Cooke, R., Dahdah, M., Norman, P., & French, D.P. (2016). How well does the theory of planned behavior predict alcohol consumption? A systematic review and meta-analysis. *Health psychology review*, 10(2), 148–167.
- d'Amboise, G., & Muldowney, M. (1988). Management theory for small business: Attempts and requirements. *Academy of Management Review*, 13(2), 226–240.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319–340.
- Davis, J.H., Schoorman, F.D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, 22(1), 20–47.
- Demirgil, H., Karaoz, M., Baptista, R., & Sungur, O. (2011). Networking activities and growth of newly founded firms under incubation. MPRA Paper 46575, University Library of Munich, Germany.
- Donaldson, L., & Davis, J.H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1), 49–64.
- Drucker, P. (2014). *Innovation and entrepreneurship*. Routledge.
- Dunning, J. H. (1988). The theory of international production. *The International Trade Journal*, 3(1), 21-66.
- Earl, J. (2006). Pursuing social change online: The use of four protest tactics on the Internet. *Social Science Computer Review*, 24(3), 362–377.
- Etemad, H. (2004). Internationalization of small and medium-sized enterprises: A grounded theoretical framework and an overview. *Canadian Journal of Administrative Sciences*, 21(1), 1.
- Filley, A.C., House, R.J., & Kerr, S. (1976). *A managerial process and organizational behavior* (No. INVES-ET D12 F487). Scott, Foresman.
- Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy and Rhetoric*, 10(2).
- Fitzmaurice, J. (2005). Incorporating consumers' motivations into the theory of reasoned action. *Psychology & Marketing*, 22(11), 911–929.
- Freeman, R. E. (1984). *Strategic management: A stakeholder's approach*. Pitman Publishing.

- Freeman, R.E., Harrison, J.S., & Wicks, A.C. (2008). *Managing stakeholders*. Yale University Press.
- Galbraith, J.K. (1967). *The new industrial state*. Houghton Mifflin.
- Garcia, R., & Calantone, R. (2002). A critical look at technological innovation typology and innovativeness terminology: A literature review. *Journal of Product Innovation Management*, 19(2), 110–132.
- Gillmore, M.R., Archibald, M.E., Morrison, D.M., Wilsdon, A., Wells, E.A., Hoppe, M.J., Nahom, D., & Murowchick, E. (2002). Teen sexual behavior: Applicability of the theory of reasoned action. *Journal of Marriage and Family*, 64(4), 885–897.
- Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion*, 11(2), 87–98.
- Gotch, C., & Hall, T. (2004). Understanding nature-related behaviors among children through a theory of reasoned action approach. *Environmental Education Research*, 10(2), 157–177.
- Gottschalk, P. (Ed.). (2007). *Business dynamics in information technology*. IGI Global.
- Grant, R.M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review*, 33(3), 114–135.
- Greiner, L. E. (1972). Evolution and revolution as organizations grow. *Harvard Business Review*, 50(3), 37–46.
- Ha, C.L. (1998). The theory of reasoned action applied to brand loyalty. *Journal of Product & Brand Management*, 7(1), 51–61.
- Hambrick, D.C. (2007). Upper echelons theory: An update. *Academy of Management Review*, 32(2), 334–343.
- Hambrick, D.C., & Mason, P.A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193–206.
- Hamilton, R.J., & Bowers, B.J. (2006). Internet recruitment and e-mail interviews in qualitative studies. *Qualitative Health Research*, 16(6), 821–835.
- Hessels, J., & Terjesen, S. (2008). SME choice of direct and indirect export modes: Resource dependency and institutional theory perspectives. Working paper.
- Hoque, R., & Sorwar, G. (2017). Understanding factors influencing the adoption of mHealth by the elderly: An extension of the UTAUT model. *International Journal of Medical Informatics*, 101, 75–84.
- Hoselitz, B.F. (1959). Small industry in underdeveloped countries. *The Journal of Economic History*, 19(4), 600–618.
- Hsbollah, H. M, Kamil, & Idris. (2009). E-learning adoption: The role of relative advantages, trialability and academic specialisation. *Campus-wide Information Systems*, 26(1), 54–70.
- Humphrey, J., & Schmitz, H. (1995). *Principles for promoting clusters and networks of SMEs (Vol. 1)*. Vienna: UNIDO.
- Javadi, M., Kadkhodae, M., Yaghoubi, M., Maroufi, M., & Shams, A. (2013). Applying a theory of planned behavior in predicting patient safety behaviors of nurses. *Materia Socio-medica*, 25(1), 52.
- Jirásek, M., & Bílek, J. (2018). The organizational life cycle: review and future agenda. *Quality Innovation Prosperity*, 22(3), 1–18.
- Karimy, M., Zareban, I., Araban, M., & Montazeri, A. (2015). An extended theory of planned behavior (TPB) was used to predict smoking behavior among a sample of Iranian medical students. *International Journal of High-risk Behaviors & Addiction*, 4(3), e24715.
- Kazanjian, R.K., & Drazin, R. (1990). A stage-contingent model of design and growth for technology-based new ventures. *Journal of Business Venturing*, 5(3), 137–150.

- Kazem, A., & van der Heijden, B. (2006). Exporting firms' strategic choices: The case of Egyptian SMEs in the food industry. *SAM Advanced Management Journal*, 71(3), 21.
- Keong, M.L., Ramayah, T., Kurnia, S., & May Chiun, L. (2012). Explaining intention to use an enterprise resource planning (ERP) system: An extension of the UTAUT model. *Business Strategy Series*, 13(4), 173–180.
- Khambata, F., & Anderson, D. (1981). *Small enterprises and development policy in the Philippines: A case study*. World Bank Staff Working Paper.
- Kirton, M. (1976). Adaptors and innovators: A description and measure. *Journal of Applied Psychology*, 61(5), 622.
- Kirzner, I.M. (1999). Creativity and/or alertness: A reconsideration of the Schumpeterian entrepreneur. *The Review of Austrian Economics*, 11(1), 5–17.
- Krishnaraju, V., Mathew, S.K., & Sugumaran, V. (2013). Role of web personalization in consumer acceptance of e-government services. *AMCIS 2013 Proceedings*. 2. <https://aisel.aisnet.org/amcis2013/eGovernment/GeneralPresentations/2>
- Laforet, S. (2013). Organizational innovation outcomes in SMEs: Effects of age, size, and sector. *Journal of World Business*, 48(4), 490–502.
- LaRose, R., DeMaagd, K., Chew, H.E., Tsai, H.Y.S., Steinfield, C., Wildman, S.S., & Bauer, J.M. (2012). Broadband adoption measuring sustainable broadband adoption: An innovative approach to understanding broadband adoption and use. *International Journal of Communication*, 6, 25.
- Lechner, C., Dowling, M., & Welpe, I. (2006). Firm networks and firm development: The role of the relational mix. *Journal of Business Venturing*, 21(4), 514–540.
- Lewis, V.L., & Churchill, N.C. (1983). *The five stages of small business growth*. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
- Liska, A.E. (1984). A critical examination of the causal structure of the Fishbein/Ajzen attitude-behavior model. *Social Psychology Quarterly*, 61–74.
- Litzenberger, R.H., & Kraus, A. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, 28(4), 911–921.
- Madhok, A. (1997). Cost, value, and foreign market entry mode: The transaction and the firm. *Strategic Management Journal*, 18(1), 39–61.
- McAfee, A., & Brynjolfsson, E. (2008). Investing in IT makes a competitive difference. *Harvard Business Review*, 86(7/8), 98.
- Miller, D., & Friesen, P.H. (1984). A longitudinal study of the corporate life cycle. *Management Science*, 30(10), 1161–1183.
- Mishra, D., Akman, I., & Mishra, A. (2014). Theory of reasoned action application for green information technology acceptance. *Computers in Human Behavior*, 36, 29–40.
- Myers, S.C. (1984). Capital structure puzzle. *The Journal of Finance*, 39(3), 574–592.
- Nguyen, T.H., Alam, Q., & Prajogo, D. (2008). Developing small and medium enterprises (SMEs) in a transitional economy—from theory to practice: An operational model for Vietnamese SMEs. *Journal of Sustainable Development*, 1(1), 113–121.
- Oliveira, T., & Martins, M.F. (2011). Literature review of information technology adoption models at the firm level. *Electronic Journal of Information Systems Evaluation*, 14(1), 110–121.
- Onakoya, A.B., Fasanya, I.O., & Abdulrahman, H.D. (2013). Small and medium scale enterprises financing and economic growth in Nigeria. *European Journal of Business and Management*, 5(4), 130–136.
- O'Sullivan, D., & Dooley, L. (2008). *Applying innovation*. Sage Publications.
- Parker, W.N. (1979). Industry (Vol. XIII). In Burke P. (Ed.), *The new Cambridge modern history*. Cambridge University Press.

- Parmar, B.L., Freeman, R.E., Harrison, J.S., Wicks, A.C., Purnell, L., & De Colle, S. (2010). Stakeholder theory: The state of the art. *Academy of Management Annals*, 4(1), 403–445.
- Penrose, E. (1959). *The theory of the growth of the firm*. Oxford: Blackwell.
- Pickernell, D., Packham, G., Jones, P., Miller, C., & Thomas, B. (2011). Graduate entrepreneurs are different: They access more resources. *International Journal of Entrepreneurial Behavior & Research*, 17(2), 183–202.
- Prananto, A., Marshall, P., & McKay, J. (2002). Stages of growth for e-business: An analysis of the perceived usability of the stages of growth model in e-business progression. In *4th International Conference on Electronic Commerce* (pp. 1–12). City University of Hong Kong Press.
- Radomir, L., & Nistor, V.C. (2013). An application of technology acceptance model to internet banking services. In *The Proceedings of the International Conference on Marketing-from Information to Decision* (p. 251). Babes Bolyai University.
- Rindova, V.P., & Fombrun, C.J. (1999). Constructing competitive advantage: The role of the firm–constituent interactions. *Strategic Management Journal*, 20(8), 691–710.
- Ritter, T., Wilkinson, I.F., & Johnston, W.J. (2002). Measuring network competence: Some international evidence. *Journal of Business & Industrial Marketing*, 17(2/3), 119–138.
- Rogers, E.M. (1995). Diffusion of innovations: Modifications of a model for telecommunications. In *Die diffusion von innovationen in der telekommunikation* (pp. 25–38). Springer.
- Rogers, Everett M. (1962). *Diffusion of innovations* (1st ed.). New York: Free Press of Glencoe. OCLC 254636.
- Rutashobya, L., & Jaensson, J.E. (2004). Small firms' internationalization for development in Tanzania: Exploring the network phenomenon. *International Journal of Social Economics*, 31(1/2), 159–172.
- Schumpeter, J. (1942). Creative destruction. *Capitalism, Socialism, and Democracy*, 825, 82–85.
- Schumpeter, J.A. (1935). *The theory of economic development*. Harvard University Press.
- Scott, M., & Bruce, R. (1987). Five stages of growth in small business. *Long-range Planning*, 20(3), 45–52.
- Shafritz, J.M., Ott, J.S., & Jang, Y.S. (2005). *Classics of organization theory* (6th Ed.). Thomson Wadsworth.
- Simmonds, K., & Smith, H. (1968). The first export order: A marketing innovation. *European Journal of Marketing*, 2(2), 93–100.
- Srisathan, W.A., Ketkaew, C., & Naruetharadhol, P. (2020). The intervention of organizational sustainability in the effect of organizational culture on open innovation performance: A case of Thai and Chinese SMEs. *Cogent Business & Management*, 7(1), 1717408.
- Staley, E., & Richard, M. (1965). *Modern small industry in developing countries*. McGraw-Hill. Stanford Research Institute. (1963). Internal memo (unpublished). Stanford Research Institute.
- Sunusi, L.S. (2002). The Ulama and mobilization for economic empowerment. A paper presented at the National Roundtable.
- Surendran, P. (2012). Technology acceptance model: A survey of the literature. *International Journal of Business and Social Research*, 2(4), 175–178.
- Taylor, S., & Todd, P.A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144–176.
- Thompson, R.L., Higgins, C.A., & Howell, J.M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 125–143.

- Tödting, F., & Trippel, M. (2005). Does one size fit all? Towards a differentiated regional innovation policy approach. *Research Policy*, 34(8), 1203–1219.
- Tornatzky, L.G., Fleischer, M., & Chakrabarti, A.K. (1990). *Processes of technological innovation*. Lexington Books.
- Toulouse, J.M. (1979). *L'entrepreneurship au Québec*. Presses HEC: Fides.
- Vallerand, R.J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology*, 29, 271–360.
- Venkatesh, V., & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204.
- Venkatesh, V., Morris, M.G., Davis, G.B., & Davis, F.D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
- Venkatesh, V., Thong, J.Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178.
- Wade, M., & Hulland, J. (2004). The resource-based view and information systems research: Review, extension, and suggestions for future research. *MIS Quarterly*, 28(1), 107–142.
- World Bank. (2002). *Small and medium enterprises: A cross-country analysis with a new data set*. Policy Research Working Paper Series 5538.
- Zain, M., & Ng, S.I. (2006). The impacts of network relationships on SMEs' internationalization process. *Thunderbird International Business Review*, 48(2), 183–205.
- Zubair, I. (2014). Entrepreneurship and economic development in Nigeria: Evidence from small and medium scale enterprises (SMEs) financing. *International Journal of Business and Social Science*, 5(11), 215–230.

A Qualitative Study of Selected Organisations' Reward and Recognition Policies to Motivate People with Disability Employees

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Abstract

A World Bank report in 2019 observed that approximately one billion differently abled in the world are a source of talent and contributors to the world economy. The concept of disability entered the United Nations Convention on the Rights of People with Disabilities (UNCRPD) in 2006. After its entry into UNCRPD, the issue related to disability has been seen as a human right and human development issue. The challenges faced by the differently abled at physical, intellectual, psychological and mental impairments multiplied when they face undue isolation and restrictions in society.

This article is based on in-depth qualitative data in the form of case studies of selected business organisations that have modified their HR practices to include differently abled people as an employee. This study is based on a theoretical framework of high-performance work practices (HPWP) and their policies regarding building reward and recognition for managing employee performance in their organisations. As further scope for research, the recommendations and suggestions of the study may be taken as a reference point to do a detailed primary study in future research.

Keywords

Differently abled people, human resource practices, employment, workplace challenges, reward, recognition, motivation

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Introduction

The success of any business or organisation is not based on its building and tangible sources but on its people and processes. Human resource (HR) plays a crucial role and core of any business activity. Therefore, HR practitioners relentlessly work for the management and development of employees in their business. Due to changes in technology and innovation, there is a paradigm shift in the processes of companies which ultimately led them to implement certain changes in their policies which not only bring business to the organisation but also motivate employees to be productive and contribute immensely. When we talk about the reward and recognition for employees, it is not always financial compensation, especially for a diverse workforce, that is, differently abled. The reasonable modification and changes in infrastructure, attitude, policies and behaviour of the staff enhance their morale and keep them loyal and committed. People with disabilities (PwDs) look for a reward in the form of association and encouragement. Employee recognition is a subjective phenomenon. Therefore, there is a need to design a uniform policy in terms of evaluation and acknowledging the workers' contribution beyond performance appraisal. Reward and recognition are a feel-good initiative which helps the workers to de-stress and value their professional expertise and experience. The culture of reward and recognition engages employees and makes them feel happy, loyal and productive. The organisations may give formal and informal reward and recognition to the differently abled. However, it is essential to have a balanced approach considering all the positive and negative effects of appreciation which have on individual and organisational growth.

Thus, the article aims to highlight the high-performance business practices in the form of case studies of a few companies such as ANZ Bengaluru Services Limited, Mindtree Limited, Big Bazaar, etc., that have been practising for building reward and recognition policies to motivate differently abled employees.

Literature Review

Researchers have studied that organisations' HR practices play a decisive role in the vocational inclusion of minorities. At present, mainstream HR practices have insufficiently addressed the complexity surrounding disability at work. As per a prior study, employer practices can even cause disparities in PwDs' employment. This contrasts with their potential for a positive impact on PwD workforce participation. PwD and (potential) employers are still in a socio-economically inefficient situation. Scholarly and managerial guidance on the appropriate utilisation and adaption of HR practices regarding PwD is clearly lacking. However, HR managers have to become more familiar with appropriate HR practices for PwD, as their decisions impact PwD workplace inclusion. In an effort to reduce socio-economic inefficiency, this review provides a comprehensive assessment of the study on HR practices potentially nurturing the workforce inclusion of PwD.

Aruna Gangapuram (2018) in her descriptive research observed that rewards and recognition have a direct and positive relationship with job satisfaction and motivation. Managers in the organisations may use different strategies to motivate employees, but it should be designed on the basis of every individual's unique values, beliefs and practices.

Boston Consulting Report (2015) identified the changes to be done in the organisational policies to reward and recognise PwD employees. The key suggestions of the study are as follows:

- *Involvement of leadership team:* No changes will start from bottom or mid-level professionals. The leadership team of the organisations should be involved at each step to design the policies and programmes.
- *Specialised recruitment and training* wherein the process of recruitment, selection, induction, training, evaluation of performance and feedback mechanism to be customised according to the needs of differently abled.
- *Recognition and awards:* The disability champions should be recognised as role models, and companies should listen to their success stories or concerns so that these motivate others as well.

ILO (2014) stated that the inclusion of differently abled employees in the business organisation is no more CSR agenda. It is a need of the organisation for their progress and managing diversity ratios. Many business organisations, such as Accenture, the Accor Group, the Adecco Group, Dow Chemicals, IBM, Standard Bank, etc., are reevaluating the aspects of business through the lens of differently abled employees. The reasonable changes in the organisational policies would bring them into the market and encourage them to contribute in the nation's development. Thus, it is observed that for the high-performance workforce, there is a need for the satisfaction of their requirements. Because a satisfied labour force leads to consumer loyalty and great economic performance of organizations. Effective recognition programs and acknowledgment of the work of employees will lead to stability and drive among employees to perform in volatile, ambiguous, and competitive environments.

Testa (2006) observed that for a high-performance workforce, it is essential to have a satisfied workforce which leads to customer satisfaction and good financial performance. The effective recognition programmes are instrumental in motivating employees in a volatile, ambiguous and competitive environment without increasing financial burden. Bell (2004) found that an effective reward and recognition programme will help to generate business benefits as a mutual feeling of respect and trust translates into happier and productive workplaces.

Noonan et al. (2004) conducted primary interviews of successful women in the United States with physical disabilities to identify their motivational factors of career success. In their research, they found that continuous reward and recognition programmes in their organisation gave them self-confidence and determination to succeed. The reward activities in the form of mentoring and receiving best achievers award boosted their confidence and motivated them to excel in their field.

Wiesner and Millett (2003) divided the reward into two types: 'input' reward in the form of fixed pay and short-term incentives and 'output reward' are awards and

recognition of employees' performance. Stone (2002) observed that recognition programmes in business are like an incentive, which focuses on a person's behaviour and sets up their performance objectives and fulfilment of these objectives.

Tawak Charles's (2021) review paper highlighted the crucial role of HPWPs on organizational performance and recommended that organizations should focus on the use of these practices to achieve their targets, retain their talents, and keep a competitive edge. Today, HPWPs not only is essential for maintaining employee performance but also for implementing a win-win situation in organizations to enhance their employee's performance and retain their talents. Organizations should take utmost care while designing and implementing HPWPs. He further states that organizations and leaders need to make critical choices of the practices that have a genuine effect on employees' performance and the broader organization outcome to attain a high-performance culture with clear standards, values, and a sustainable engaging environment.

Conceptual Definition

Reward: Jack Zigon defines 'reward' as 'something that increases the frequency of an employee action' (1998). *Recognition*: It is a constructive, genuine feedback based on acknowledging people as sincere, worthy of respect, having needs and equipped with their own personal expertise. *Motivation*: Abraham Maslow (1954) defines motivation as the cognitive, aesthetic and transcendence aspects which drive a man towards a developmental change.

Theoretical Framework

'High-performance work practices' (HPWP) is not a new word in human resources management (HRM). Every company has an aim to manage its people effectively. The term HPWP is defined as those practices of HRM that are adopted by managers to improve employees' performance in organisations. The different types of HPWP identified by various scholars are as follows:

- Universalist (Delery & Doty, 1996): HR practices are universal in nature and produce maximum results when adopted irrespective of the nature and types of organisations.
- Contingency: A combination of HR practices will only work best if it is customised according to the organisational settings or within a specific group of workers. The aligned practices produce the needed outcome.
- Configurational: It describes the structure, boundaries and relationships through which an organisation operates.

Many theories proposed are related to HPWP, such as Huselid's (1995) two dimensions (skills and workers motivation) and Dalery and Doty's (1996) seven HPWP practices in 1996, such as profit sharing, employee participation, appraisals, training, career opportunities, job security and job description, and many more.

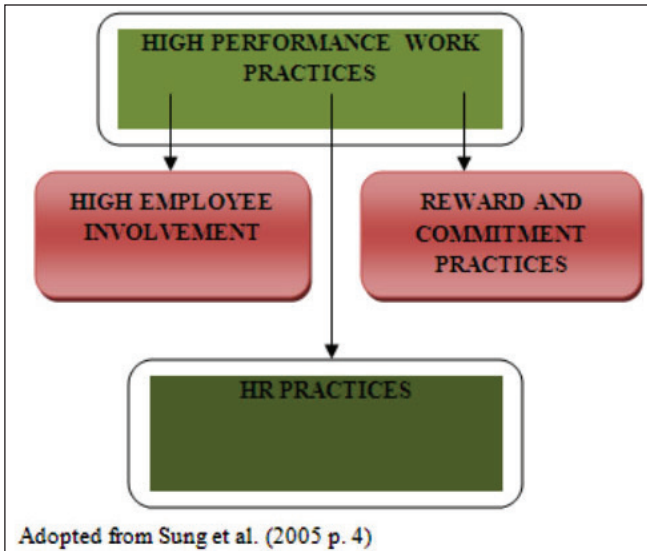


Figure 1. The Three Broad Areas of HPWPs.

Source: Timiyo (2014, p. 10).

However the theoretical framework of the study is based on Sing et al. (2005), who mentioned that HPWP practices are based on three broad areas of reward and commitment, high employee involvement and HR practices as stated by Sung & Ashton. (2005).

These are highlighted in Figure 1.

Objectives of the Study

- To analyse the HPWP reward and recognition practices of selected companies.
- To understand the impact of reward and recognition practices on motivation for PwD employees in the organisations.

Research Questions

What are the high-performance business practices in terms of their reward and recognition policies to keep PwD employees motivated in their organisations?

Research Methodology

The research article is based on the HPWP of selected companies that are building inclusive work cultures and developing their HR practices to initiate the reward and recognition programmes to motivate PwD employees. The article is based on secondary published case studies using various research sources. The article has

also used the data/information available on the organisation through the internet and other secondary sources.

Selected business cases of HPWP that have built the reward and recognition policies to motivate differently abled employees are presented in Table 1.

Findings

Thus, it is found that HPWP focuses on building their human capital and work continuously to engage a diverse workforce in their organisations. The effective reward and recognition programmes are useful not only for PwD employees but for their counterparts as well. The analysed cases proved that the HPWP works on it and creates an inclusive culture with an equal opportunity policy without any discrimination. The reasonable modifications in business premises encourage PwDs to perform better and motivate them to contribute and be productive.

Conclusion

In conclusion, although ‘motivation’ is a subjective term, it is influenced by a variety of factors, and there is a close relationship between rewards and recognition. The higher the levels of motivation, the greater the satisfaction, performance and productivity. Maslow’s theory of hierarchy of needs reminds organisations to address all levels of needs of PwD employees to remain motivated and self-actualised. The acknowledgement, appreciation, reward, honour, respect and care are magical actions which attract, retain and motivate employees.

Future Scope of Study and Managerial Implications

Organisations are aware that it is essential to have a diverse workforce in their organisations and vocational inclusion of differently abled to overcome the challenges related to a shortage of a skilled labour workforce in future ageing workforces, etc. The Rights of Persons with Disabilities Act (2016) is a landmark act and passed many important ordinances related to the incentivisation of public and private sectors for employing differently abled in their organisations. Through business cases and previous research, it is proved that PwDs are loyal, committed and productive if they are motivated and have suitable policies. However, a multidisciplinary research approach is still required to identify the various enabling factors of business growth and societal developments. The future research may be taken from these aspects. Companies need to understand that the reward and recognition programme for PwD employees’ motivation is crucial to curtailing stigmatised and biased behaviour towards them. Future research may analyse in detail the different reward and recognition programme of companies that vary from industry to industry and propose future recommendations accordingly.

Table 1. Business Cases of HPWP That Have Built the Reward and Recognition Policies to Motivate Differently Abled Employees.

Company Name	Year of Establishment	Reward and Recognition Initiative	Impact on Motivation of PwD Employees	Sector
ANZ Bengaluru Services Limited	1989	Started in 2010 for hiring PwDs, reached up to 2% of the total workforce. Company rewards them with fixed pay, career growth opportunities, reasonable modifications, no discrimination, highlight the best performers, continuous training, etc.	Less attrition, inclusive work cultures, diverse workforce, confidence among PwDs and champions of change.	IT
Big Bazaar	Sabke Liye, 2018	Sabke liye initiative. Worked on a 360-degree approach. Changes in HR policies. Identification of types of disabilities to be hired. Worked on infrastructure, sensitisation, generous leave policies, equal opportunity policy, recognition of PwD employees as an asset, empathetic training and accessibility spaces at workplace	Loyal, committed, optimistic and changing perspectives of employees vis-à-vis their counterparts.	Retail
IHG India	Started hiring in 2016	Changes in HR policies such as providing special assistance toolkits, assigned work front responsibilities, sign language posters, self-assessment with continuous feedback, annual career week for interaction across departments, competency mapping, winning ways Wednesday appreciation initiative, featuring disability champions on company's heroes book magazine, performers to have informal meet with senior level team, etc.	Morale booster increases self-esteem and confidence. There was also a lack of absenteeism and attrition of PwD employees.	Hospitality
Microsign Products	1979	Skill development initiative, zero-defect work output, jobs according to the types of disabilities, induction process post joining, training and upskilling, performance evaluation, feedback, achiever award in annual meetings and outbound programme	Team building, trust and morale with confidence, rigour to perform and engagement in all high-performing positions.	Manufacture
Mindtree Consulting Limited	1999	Performance appraisals identify high performers, fixed pay and incentives, awards to performers, publishing stories of disability champions, setting high value in policies, inculcating the culture of shared values, leadership development initiatives, etc.	Less attrition, retention of employees, self-reliant, confident, stable, mature, optimistic, loyal, committed and productive.	IT

Source: CII Report (2020).

Limitations

As with every study, this study also has limitations. First, the article may be limited due to its search strategy. Articles were included based on only secondary published sources, and cases were also analysed according to the availability of sources on the choice of databases, search terms and journal format (peer-reviewed). The considered cases are also from different industries; therefore, the generalisation of this study may be avoided. However, this study may be taken as a reference point to do detailed research on various reward and recognition initiatives of companies for PwD employees' motivation.

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References

- Bell, M. (2004, April/May). Just rewards. *Employment Today*, pp. 14–16.
- Boston Consulting Group report. (2015). On the road to inclusion: Integrating persons with disabilities in organizations.
- CII Report. (2020). *Champions of change catalysing inclusion at workplace*.
- Delery, J.E. Doty, D. H. (1996). *The Academy of Management Journal*, 39(4),802–835. <https://www.jstor.org/stable/256713>
- Gangapuram, A. (2018). Impact of rewards and recognition on employee motivation. *International Journal of Creative Research Thoughts*, 6(1), 2320–2882.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38, 635–672. <http://dx.doi.org/10.2307/256741>
- ILO. (2014). *Business as unusual: Making workplaces inclusive of people with disabilities*.
- Maslow, A. H. (1954). *Motivation and Personality*. Harper & Row Publishers. <https://www.holybooks.com/wp-content/uploads/Motivation-and-Personality-Maslow.pdf>
- Noonan, B.M., Gallor, S.M., Hensler-McGinnis, N.F., Fassinger, R.E., Wang, S., & Goodman, J. (2004). Challenge and success: A qualitative study of the career development of highly achieving women with physical and sensory disabilities. *Journal of Counselling Psychology*, 51, 68–80.
- Stone, R. (2002). *Human resource management* (4th ed.). John Wiley & Sons Ltd.
- Sung, J., & Ashton, D. N. (2005). *High-performance work practices: linking strategy and skills to performance outcomes*. Department of Trade and Industry.

- Tawk, C.J. (2021). Effects of high-performance work practices (HPWPs) on employee performance: A review article. *Journal of Human Resource and Sustainability Studies*, 9, 397–412. <https://doi.org/10.4236/jhrss.2021.93025>
- Testa, B.M. (2006). Rewards relaunch. *Workforce Management*, 85(8).
- Timiyo, A.J. (2014). High performance work practices: One best-way or no best-way. *IOSR Journal of Business and Management*, 16(6), 8–14.
- Wiesner, R., & Millett, B. (2003). *Human resource management: Challenges & future directions*. John Wiley & Sons Ltd.

Driving Sustainability: Exploring Global Green Banking Initiatives for a Greener Future

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Abstract

Environmental degradation threatens survival of entire Global system. Global warming has been a national and international issue in recent years. Environmental challenges harm businesses directly and indirectly. Although several regulations to control pollution and protect the environment, they are not enforced, therefore we have failed to prevent environmental damage. So, all business policies focus on environmental issues. In a worldwide economy, regulators, governments, media, judiciaries, civil society organisations, and social activist groups are analysing industry and corporate environmental impacts and pressuring them to become greener. Hence, ethical regard for the environment is transforming global corporate sectors into green, ecologically friendly ones. The banking sector as a business sector is not excluded from this initiative. Consequently, encouraging environmentally friendly initiatives and prudent lending should be one of the financial industry's obligations. Hence Banks and other financial companies are streamlining carbon emission reduction. Banks worldwide are investing in green strategy. These actions, part of a larger sustainable development plan, have created the concept of Green Banking. In the realm of finance, Green Banking is a relatively recent concept. It varies from conventional banking in that it considers environmental considerations while deciding whether to grant a loan. The green finance movement is young but expanding fast enough to replace fossil fuel investments. So, future demand for green financial products is expected to rise. In light of this, the present study compiled a list of a few global banks that have

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implemented Green Banking initiatives. Consumers are able to safeguard the environment and work to mitigate the effects of climate change while also doing their typical banking operations online. This research study is intended to analyse the various Green Banking Initiatives that have been implemented by a selected financial institution worldwide. The focus of the study has been narrowed down to five financial institutions from around the world that were actively engaging in green banking initiatives through their customers' active participation namely Starling Bank, Treecard, Aspiration, bunq and Tomorrow and Green Banking Initiatives in Indian Scenario. The annual reports of the chosen financial institutions, sustainability reports, official websites of the concerned banks, and other sources are sorted through in great detail for the purpose of gathering data on the green banking activities initiated by these financial institutions.

Keywords

Environmental protection, sustainable development, green initiatives, green banking

Introduction

Existence becomes a challenge factor because of environmental degradation. Consequences that arise from this include serious global warming and pollution. Throughout the previous few years, global warming has grown to be a concern on a national and international level. Our ecological balance has been impacted by global environmental issues such as pollution, population increase, energy shortages, the greenhouse effect, and effluents. Businesses are affected negatively by environmental issues both directly (such as supply chain interruptions) and indirectly (such as health risks that result in lost productivity and man-hours) (First Carbon Solutions, 2015). Despite the fact that numerous laws have been passed to control pollution and safeguard the environment, they are not strictly adhered to, and as a result, we have failed to limit the harm to the environment. So, addressing environmental issues continues to be central to all corporate policies. In a globalised economy, regulators, governments, media, judiciaries, civil society organisations and social activist groups are scrutinising the environmental effects of economic operations by industries and corporations and placing pressure on them to become greener. Currently, environmental preservation and sustainability are extensively recognised. With the practice of reducing, reusing, and recycling an effort is being made to cut down on the need for fossil fuels.

In this line, through ethical consideration for the environment, business sectors of the globe are transforming into green businesses and becoming environmentally friendly. The banking sector as a business sector is not excluded from this initiative. Banking and financial sectors are the major economic agent which not only influences the overall industrial, economic and development process but also imposes conditions as they are the main sources of finance for companies/industries. Consequently, encouraging environmentally friendly initiatives and prudent lending should be one of the financial industry's obligations (S, 2016).

Hence The process of reducing carbon emissions is being streamlined or improved with the help of banks and other financial institutions. Sustainable Green Banking is a crucial component of the 'Go Green' initiative. Globally, banks are making significant investments in green strategy (Evangelinos et al., 2009). Greening a bank means further reducing the carbon footprints that are caused by banking activities; this is advantageous to the banks, as well as to industries and the economy as a whole (Bihari & Pandey, 2015). As a result of these activities, which are a component of the more comprehensive strategy for sustainable development, Green Banking has evolved into a concept.

Green banking is a relatively new concept in the world of finance. It differs from traditional banking in that it takes into account environmental factors while making lending decisions. The adoption of practices that are less harmful to the environment and more beneficial to the world is what is meant by 'Green Banking'. Green Banks are non-profit, mission-driven financial firms that utilise creative forms of finance to accelerate the shift toward renewable energy sources and reduce their impact on the environment. Addressing climate change is the primary priority of green banking. Green Banking offers a more equitable and inclusive approach to banking. Rather than focusing solely on profit, Green Banking prioritises the well-being of communities and the environment.

The Green Banking movement is new, but it is growing quickly enough to substitute investments in fossil fuels. A decade ago, environmentalists demanded that banks divest from oil, natural gas, shale, and tar. Currently, \$14.5 trillion is committed to divestment from fossil fuels. If fossil fuels are stigmatised, less money will go to their companies, which could eventually lead to a rise in the usage of renewable energy. Since the Paris Agreement, sixty of the world's largest institutions have invested \$3.8 trillion in fossil fuels. Thankfully, green finance helps ensure that people's funds no longer support the fossil fuel industry. These green institutions aim to positively affect their local community, environment, and economy. Consequently, it is projected that there will be a higher demand for environmentally responsible banking products in the years to come. As a result, it is projected that there will be a greater need for environmentally responsible financial products in the years to come. Younger generation are advocate for green initiatives, green products, and green processes with increasing volume. In light of this, the present study compiled a list of a few global banks that have implemented Green Banking Initiatives with active involvement of customers and also discussed about Green Banking Initiatives in Indian Scenario.

Review of Literature

Bouteraa et al. (2020) made an attempt with their research study titled 'Green Banking Practices from Islamic and Western Perspectives' evaluating critically the concept of Green Banking and comparing the nature of green practices between the leading western and Islamic theories using secondary data. The phrase 'Green Banking' often refers to economic, social, and environmental growth that makes it possible for the current generation to also meet the demands

of future generations. However, the analysis revealed that the concept of 'Green Banking' is perceived differently in western and Islamic cultures. When viewed from an Islamic point of view, sustainable development is the process of enhancing both the material and the non-material aspects of human happiness in a manner that is both balanced and maintained over time. Furthermore, because an Islamic bank reflects the real essence of Islam, it is expected that it will perform better than its conventional counterparts in terms of Green Banking practices. The study found that there has been very little research on Islamic perspectives on Green Banking practices, and that more study is needed. It is necessary to do additional investigation and empirical research to validate the results.

Johnson et al. (2020) presented a global economic modelling study that assesses the impacts of environmental change on the economy. The authors used modelling techniques to project the economic consequences of environmental issues such as biodiversity loss, climate change or resource depletion. The study aimed to provide insights for policymakers and decision-makers to develop effective policies and strategies to address environmental challenges while supporting economic development.

Green banks are into green banking practices. Green banks are mission-driven. To combat climate change, they deploy innovative funding strategies to accelerate their renewable energy transition (Coalition for Green Capital, 2020). All green banks seek other objectives in addition to their stated mission. Increasing the resilience and/or meeting the needs of low-income populations are among the other objectives. It should be highlighted, however, that green banks use financing rather than grants for this reason. Financing ensures that the borrower will eventually repay the capital to the lender. This payback enables banks to maximise the impact of every rupee lent. Given this backdrop, green banks cater to markets where the potential for payback is high! Put differently, proven, financially and technically viable projects easily qualify for green bank financing. Bank financing might be combined with other market development initiatives.

Heri Setiawan et al. (2018) through their study examined the implementation of green banking in sharia banks. The qualitative descriptive method was employed in this study. The information gathered through observation and interviews with sharia banks' executives and staff. They emphasised that Islamic values, which serve as the fundamental principles and laws of sharia banking, are also in line with the use of green banking in sharia banks, which is not merely driven by Indonesian government policy. They came to the conclusion that implementing green banking was good for the environment and may save operating expenses and energy expenditures. This type of sustainable development is supported by the economic (profit), environmental (the planet), and social (the people) pillars. In order to implement green banking in sharia banking and save money and energy, the bank has implemented the concepts of green products, loans, cards, and portfolios.

Prakash et al. (2018) attempted to investigate the consolidation activities being performed by the Indian banking sector and analyses the banking sector's readiness for sustainable development in India in their research paper titled

‘Consolidation in the Indian banking sector: evaluation of sustainable development readiness of the public sector banks in India’. The study relies on the theoretical model of sustainable banking and is based on secondary data. For the purpose of the study, the researcher thoroughly examined the annual reports, business responsibility reports, and the official websites of banks. Despite their substantial exposure to associated hazards, Indian Public Sector Banks have been proven to be unwilling to respond to sustainability challenges. Banks are not yet sufficiently prepared to handle the difficulties that sustainability involves. Regarding the incorporation of sustainability into banking activities, it was established that Indian Public Sector Banks are far behind. However, India needs to enhance the regulatory element as well. In order to meet the difficulties of sustainability, the banking sector may need to be strengthened. To evaluate the success of its policy initiatives for encouraging sustainability in the banking sector, the government may also need to harmonise its regulatory framework in the sector.

Shaumya and Arulrajah (2016) the researchers gave an overview about the four important banks of Sri Lanka regarding green initiatives. The study has included secondary as well as primary survey related to green banking practices in Sri Lanka. Later, they considered creation of Instrument for measuring green banking practices amongst bankers. They identified 98 green banking practices of total four banks in the first step, then scrutiny was done on the basis of similarities and differences, which led to 16 green banking practices with category of four dimensions- daily operation related practices, customer orientated, employee oriented and bank policy related practices. Later pilot study was accomplished and reliable scale was developed with inputs received. It was concluded from the study that, the scale developed so far is reliable and valid, Bankers get to know about their initiatives comparing others and will be able to improve upon the concerned areas and this will motivate banks and make the bankers more knowledgeable about the green activities.

Tu and Yen (2015) through their study aimed to provide conceptual comprehension of the concept of the general Green Bank and its economic benefits. In addition, the study attempted to provide an overview of international case studies, both successful and unsuccessful, regarding the Green Banking concept, and offered Vietnam’s perspective. This article examines the research literature on Green Banking and the Green bank model. Case studies of developed and developing nations are used to extract the best practices for Green Banking. In-depth interviews with Vietnamese bank officials are also undertaken to understand about their problems and potential as they implement Green Banking practices. The study’s findings indicated that because of the Green Banking is still in its infancy and because the start-up expenses are so high, both banks and businesses need to be fully committed to succeeding. Institutions will initially pay a lot for these promises to the innovative concept, but the model’s long-term success cannot be ignored. Therefore, the Vietnamese banking industry should quickly accept the green bank business model in order to practise sustainable banking.

Ganda and Ngwakwe (2014) reviewed South African institutions' energy and carbon reduction practices. South African institutions' sustainability reports were mined for energy and carbon management practices using a desk-based methodology. These practices were contrasted to international regulations governing energy and carbon policies and practices in financial institutions. The collected data were tabulated to demonstrate the diverse energy and carbon reduction practices employed by South African banks. The energy and carbon reduction practices of South African institutions demonstrate growth and potential for achieving the goal of sustainable development. In addition, establishing strong relationships with other banks on energy consumption issues, reviewing sustainability practices in accordance with climate change issues and developing businesses based on climate change issues should be the highest priority for banks. The key finding of the study is that South African banks adopted energy-saving and carbon-reduction techniques in their daily operations.

Rahman et al. (2013) through their study sought to understand the management of environmental risk, identify opportunities for cutting-edge environmentally friendly financial products and study environmental issues and control laws pertaining to green banking in Bangladesh. The article's major base is secondary data that was gathered from numerous reliable sources. The sources of secondary data include articles relating to the subject matter as well as the annual reports of Bangladesh Bank and several Commercial Banks. According to the study's conclusion, Bangladesh Bank has periodically released various circulars about the modernisation of green banking practises and their efficient implementation. It will only be feasible to complete the implementation of Green Banking activities in Bangladesh if every bank creates their work plan in accordance with those guidelines and collaborates. The globe will then start to restore its green environment, and our descendants will have a safe place to live. This can only be realised through a coordinated effort between clients and bankers.

Islam and Das (2013) aimed to evaluate Bangladesh's Green Banking practices, support its potential for Green Banking practices, and provide some recommendations in this regard. The research is based on secondary data collected from the annual reports of the chosen banks. The data were analysed in terms of green finance practices and issues. The study suggests that the government and every bank should implement Green Banking practices in order to safeguard the environment. Government should promote green banking practices to the broad public. The Bangladesh Bank should oversee commercial banks regardless of whether they engage in green finance.

Bhardwaj and Malhotra (2013) entitled 'Green Banking Strategies: Sustainability through Corporate Entrepreneurship' studied, investigated how rewards, top management support, risk-taking, and a tolerance for failure influenced the adoption of green banking practises. The research methodology for the study was a case study approach, and it was based on secondary data. The study found that the adoption of green banking practises by banks had an impact on the organisation's performance. The study recommended that banking and financial organisations create environmental risk and liability criteria for the creation of safety measures and reporting for each project they fund or invest in.

Research Methodology

The research study employed a quantitative methodology to conduct the investigation. In addition, secondary data have been utilised in an effort to conduct a comprehensive analysis of the study. Secondary data were gathered from annual reports of Banks and Financial Institutions, various reports published by international organisations, newspaper articles, and websites. In addition, numerous working papers, journals, and articles were reviewed to strengthen the study's research base. To assemble published data, intensive desk research was performed. The collected data has been analysed critically from the perspective of gaining an understanding of the few banks worldwide that have initiated Green Banking initiatives with the active participation of their customers.

The focus of the study has been narrowed down to five financial institutions from around the world that were actively engaging in green banking initiatives through their customers' active participation namely Starling bank, Treecard, Aspiration, bunq and Tomorrow. The annual reports of the chosen financial institutions, sustainability reports, official websites of the concerned banks, and other sources are sorted through in great detail for the purpose of gathering data of the green banking activities initiated by these financial institutions.

Objectives of the Study

The research aims to accomplish the following purposes:

- To comprehend the idea of Green Banking.
- To analyse the various Green Banking Initiatives that have been implemented by a selected financial institution worldwide.
- To analyse about the growth of Green Banking Initiatives in the present Indian scenario.

Statement of the Problem

There is no longer a need for a strategic decision about sustainability in the banking industry. Because of the rising threat posed by climate change, financial institutions all over the world will need to implement environmentally responsible business practices. For financial organisations whose first concern is for the wellbeing of the planet, 'Green Banking' should not be considered an option any longer. In response to environmental, social, and governance concerns, numerous institutions have already begun integrating sustainability into their business operations (ESG). The Principles of Responsible Banking have been adopted by roughly half of the global banking industry.

Green banking contributes significantly to assuring sustainable development by focusing on economic growth and environmental protection. Green instruments and green lending necessitate significant resources from banks and financial

organisations. Hence, Green Banking strategies largely depend on the bank's attributes. Over the next few years, demand for Green Banking products is expected to rise. This study fills a gap in the literature on Green Banking by examining the world-wide initiatives of selected financial institutions regarding green banking activities, the impact of attributes on green banking activities, as well as their assistance for individuals affected by environmental problems. The study discusses about the contribution of Green Banking to environmental sustainability by describing how the few banks worldwide that have implemented green banking initiatives and their customers can safeguard the environment and address climate change while conducting daily digital banking.

Green Banking Initiatives of Global Financial Institutions

I. Starling bank's

Starling Bank is a UK-based digital bank that offers personal and business banking services. Founded in 2014, it operates primarily through a mobile app and has a commitment to sustainable finance. The green banking initiatives of the bank includes:

- **Digital-first banking:** The traditional methods that people use to handle their financial matters are being replaced by a system in which Starling Banks operate completely branchless and paperless operations from day one.
- **The greener way to pay:** In March of 2021, the personal and corporate account cards offered by Starling Bank were the first MasterCard debit cards issued in the United Kingdom to be constructed from recycled plastic. Also, the card packaging is completely recyclable, including the use of an environmentally preferable water-based glue.
- **Eco-friendly offices:** The three UK offices of Starling bank, located in London, Southampton, and Cardiff, are powered by renewable energy. In addition, they offer a Cycle to Work program that encourages employees to purchase a new bicycle through 'salary sacrifice' and save on taxes.

The other green banking initiatives of the banks are:

- Additionally, the bank has set a target to allocate 20% of its lending to sustainable projects by the end of 2023. This includes projects that have a positive impact on the environment, such as renewable energy and sustainable transportation projects, as well as projects that have a positive impact on society, such as affordable housing and community development projects.
- Starling Bank also has set targets related to its operations and administration. For example, it has set a target to reduce its paper usage by 50% by 2022 and also to achieve a 100% renewable energy supply by 2025.
- Starling Bank has also set several ambitious goals and targets related to sustainable finance such as achieving net-zero carbon emissions by 2030

and investing £1 billion in sustainable infrastructure and clean energy over the next five years.

- Also, they give the customer the opportunity to take part in the Plant the Seed initiative. In order to offer a referral program, the UK bank has collaborated with Trillion Trees, a non-profit conservation organisation that aims to battle deforestation and replace 1 trillion trees by 2050. According to this strategy, Trillion Trees will plant a new tree when a Starling bank customer suggests a friend who joins the bank.
- Starling Bank also participates in UNEP FI and the Green Finance Taskforce, in addition to these efforts and goals. The bank recently signed the UN Guidelines for Responsible Banking, agreeing to integrate its business strategy with the UN Sustainable Development Goals (SDGs). These initiatives provide a platform for the bank to share knowledge and best practices with other financial institutions and to collaborate on initiatives to promote sustainable finance.
- One of the specific initiatives that Starling Bank has implemented to support sustainable business is its partnership with the Carbon Trust. Through this partnership, the bank offers small and medium-sized enterprises (SMEs) access to the Carbon Trust's Carbon Management Program, which helps businesses to identify and reduce their carbon emissions. This includes providing businesses with a carbon footprint assessment, as well as guidance on how to implement energy-efficient upgrades and renewable energy projects.
- Additionally, the bank also offers its customers a Green Energy Switch service, which enables customers to switch to a renewable energy supplier and offset their carbon emissions.
- Another initiative that Starling Bank has implemented is its commitment to responsible lending. The bank has implemented a responsible lending policy which includes a thorough assessment of the environmental and social impact of the projects that it finances. This approach can provide access to fair and affordable financial services and create job opportunities, ultimately helping to improve the lives of underserved communities by building wealth and achieving financial stability.

II. Tree Card

Another institution that promises to protect the environment is Tree Card.

- Tree Card is a debit card and mobile app that was launched in 2021 with the aim of helping users to reduce their carbon footprint and support reforestation efforts around the world. It is working with Ecosia, the not for profit search engine that is planting trees to build an ecosystem of responsible alternatives to services like banking and internet search. Ecosia is also behind Treecard's reforestation projects.
- This bank is committed to reforesting the planet through its digital banking services, while also employing wood-based cards. The bank contributes 80% of its profits to the reforestation initiative.

- Ecosia, a Germany-based search engine known for contributing to similar environmental initiatives, has donated \$1,000,000 to TreeCard. Ecosia has planted more than 112 million trees based on the number of searches conducted by its users. Every \$50 a customer spends on daily payments will result in a new tree being planted, and they will also be eligible for a variety of rewards that prioritise the environment.
- Credit and debit cards are created in the billions annually. These plastic cards have a large carbon footprint despite appearing tiny. TreeCard, a fintech startup, is launching wooden debit cards and planting trees to offset this environmental damage. The card is crafted from cherry wood that has been sourced in a manner that does not impact the environment, and it is estimated that one tree can yield up to 300,000 cards. The card is compatible with widely utilised online wallets including Apple Pay, Android Pay, and Samsung Pay. The start-up will also release an app that enables the user to perform basic digital banking tasks as well as monitor the number of trees planted through their spending.

III. Aspiration

- Aspiration is a financial services company that assists individuals in putting their money to good use. It is not a bank, but an online-only financial institution that offers a cash management account as opposed to traditional checking and savings accounts. Aspiration seeks to distinguish itself by offering incentives for socially and environmentally responsible expenditure.
- With the services offered and sustainable investing techniques by Aspiration, banks are looking up to this leader and are following its footsteps by becoming certified B Corps that focuses on 3 P's, that is, People, Planet, and Profit.
- With a mission so unique, Aspiration, a new financial partner, sets out to build a better world by offering socially conscious and sustainable cash management services. They aim to plant trees all around the world, offset carbon emissions and make the planet green again. Aspiration is 100% committed and their customers are assured of mindful saving and eco-friendly spending. It serves customers from all spheres.
- With an Aspiration Spend & Save Account, customers of Aspiration can make a difference. All of their deposits are free of fossil fuels, and customers can support Plant Your Change by activating the feature in their accounts.
- Aspiration ensures customer deposits will not fund climate change. Although the Aspiration website does not explicitly state how it ensures that deposits do not fund fossil fuels, AltEnergyStocks.com has established that Aspiration deposits 'are fossil fuel free by all accounts'.
- The Plant Your Change feature of Aspiration rounds up debit card purchases to the nearest whole dollar. The rounded-up quantity is donated to a large tree-planting fund. They are deducted from the customer's card, and the customer is notified of the number of trees that will be planted as a result

of their contribution. With each client swipe, the bank will plant a tree, and customers will receive monetary rewards for their assistance.

- Aspiration offers a corn-based PLA credit card, the Aspiration Zero Credit Card, in addition to debit cards. They also plant a tree for each purchase made using this card.
- Aspiration also provides a feature known as the Aspiration Impact Measurement (AIM), which notifies customers of their individual sustainability score based on the products they buy as well as the Planet & People scores of shopping points. This lets customers know which companies care about the welfare of the environment as well as the people who work for them.

IV. Bunq

- Another EU-based financial institution that offers environmentally responsible banking options to its customers is bunq, which is headquartered in the Netherlands. Bunq identifies itself as the 'Freedom Bank'. In addition to providing banking services, Bunq seeks to contribute to climate change by allowing its customers to reduce CO₂ emissions while making routine purchases.
- Bunq, which ranks third in a list of 27 financial institutions for its green initiatives in the Netherlands. The Bunq app provides users with a running commentary on how many trees they have planted and where they have been planted.
- The company's consumers value its policy of environmental conservation and community building, as evidenced by the fact that between 2018 and 2019, They enhanced the total value of their customer deposit by more than doubling it, from 211 million to 433 million EUR.
- The Bunq Super Green service is unique in its kind. The Netherlands financial service provider reduces the customer's carbon footprint by planting a tree with its cooperating partner for every 100 euros spent. Bunq claims its services can enable a client with an average expenditure level (€1,000 per month) and lifestyle carbon-free in two years.
- The substance of the bank card linked to the Bunq Super Green service further supports the bank's dedication to environmental preservation. Unlike the conventional plastic design, the sheet is constructed of sturdy stainless steel, whose recycling puts less strain on the environment.
- Through the Easy green monthly plan, customers can become carbon neutral in two years and qualify for the bank's eco-friendliest and durable Metal card. Additionally, when they spend 100€ using this card, a tree will be planted with the assistance of their associates, Eden Reforestation Projects, making the world a little bit greener.
- Bunq bank, claims to offer a climate neutral service, and planted a record 1 million trees on behalf of their customers in just four months last year. They also became the first neobank to publish a climate action report. Their

commitments to socially responsible investing and cutting their own carbon emissions (low in comparison to other banks) are considerable.

- By providing a brand-new ‘cashback service’ each time you spend a set amount of money, Bunq Bank is one bank upending the market. For each \$100 you spend with their ‘Green Card’ at this bank, the business will plant a tree. The business is officially associated with Eden Reforestation Projects, and together, they are funding reforestation efforts all around the world.
- As a bank leading the charge to make the financial system sustainable, bunq supports aligning financial flows with low greenhouse gas emissions and climate-resilient projects to help achieve temperatures far below 2.0 degrees Celsius. Bunq is setting science-based standards to help reduce the world average temperature increase to 1.5°C. The bank expect that these targets will be set and ready for validation by the Science-Based Targets initiative by the end of 2023. They have committed to several objectives in 2020 Climate Report to maximise bank impact and match measurable objectives with the maximum global temperature increase of 1.5°C. These objectives are as follows:
 - Bunq is dedicated to providing its users with a service that is climate neutral, making it a bank that is genuinely climate neutral.
 - Bunq is devoted to funding initiatives that directly contribute to the reduction of CO₂. Bunq will continue to optimise its investment portfolio by excluding initiatives that have an adverse impact on climate change mitigation.
 - Bunq is dedicated to measuring and disclosing its carbon footprint. Bunq will actively participate in and contribute to Partnership for Carbon Accounting Financials (PCAF) project groups to further enhance the beneficial influence of such on the financial sector.

V. Tomorrow Bank

- The German-based Tomorrow bank gives its clients the option to support climate conservation in addition to offering creative card designs. One square meter of rainforest is preserved for every euro spent using their Tomorrow card. This program has so far saved 61,617,460 trees. A tiny transactional fee known as the ‘Interchange fee’ must be paid by the store owner to their bank whenever a consumer makes a purchase in-person or online. Tomorrow allocates the largest portion of this money to initiatives that promote reforestation.
- In September 2020, Tomorrow became the first European mobile bank to become a certified B Corp, joining the ranks of Bank Australia, Banque Raiffeisen, and many more. The prestigious B Corp certification indicates that a for-profit company uses a portion of its revenue to invest in social projects with a strong focus on sustainability. Although achieving B Corp status in itself cannot guarantee that a company will really uphold its promise to protect people and the environment, it does mean that Tomorrow is beholden to thorough and continuous assessment

- In short, the standout feature of Tomorrow Bank is its rigorous commitment to sustainability and environmentally-friendly projects.
- When choosing a bank, customers rarely know where their savings are being invested, and are often shocked to find that their money is put towards causes that they do not support. By way of example, German banks invested 11.75 billion dollars in nuclear weapons in 2019. Tomorrow Bank hopes to change this by offering full transparency as to which ethical investments customer money is being put into—so far, this approach has had some exciting results. To date, the bank has invested €44,100,000 into renewable energies and €11,000,000 into social housing.
- Tomorrow offers the carbon footprint feature to all customer segments at no additional cost, further boosting its already robust catalogue of sustainability offerings. Customers can also round up their daily payments to the full euro to donate little amounts to climate justice with Tomorrow. Consumers can also track their influence.
- When a customer applies for a card, the bank dedicates a tree with zero CO₂ to them, giving them a direct way to fight climate change. The Flowe card is made of wood and was created to adhere to stringent environmental criteria. When a consumer orders one, a tree is planted in Guatemala in their honour to reduce CO₂ emissions while also contributing to the local economy and family nutrition. They use the Flowe Card Mastercard to assess customers' CO₂ output from their expenditures in collaboration with climate-impact fintech Doconomy.
- They demonstrate that banks do more than just promise to support climate protection. But they make a conscious effort to include and motivate customers to protect the environment.

Green Banking Initiatives of Indian Financial Institutions

The various Green Banking Initiatives offered by Indian Financial Institutions includes the following:

- Electronic banking which includes initiatives like UPI initiative, payment banks, NEFT Transfer, RTGS, etc.
- Green bonds.
- Green car loans.
- Green cards.
- Green CDs.
- Green channel counter.
- Green checking accounts.
- Mobile banking.
- Online banking.
- Power saving appliances.
- Remote deposit (RDC).
- Use of non-renewable energy sources like solar and wind energy.

Guidelines of the RBI Concerning Green Banking

The Reserve Bank of India (RBI), the country's central banking institution, has actively promoted green banking practises. According to RBI, the purpose of green banking is to reduce the negative effects that traditional banking practises, physical infrastructure, and information technology have on the surrounding environment in order to make them more ecologically friendly. The RBI encouraged banks to consider sustainability factors in their lending decisions by issuing guidelines on environmental and social risk management in the year 2015. The recommendations place a strong emphasis on the requirement that banks assess and manage social and environmental risks associated with their lending activities. The RBI established the Institute for Development and Research in Banking Technology (IDRBT), which has pushed for the adoption of a uniform rating system for environmentally friendly institutions and banking practises among Indian banks.

Growth of Green Banking in India

Green banking financial instruments proceeds for investment in environmentally sustainable and climate-suitable projects. In recent years, the growth of green banking in India has gained momentum as the country strives to address environmental challenges and promote sustainable development. Here are some key aspects of the growth of green banking in the Indian scenario:

- Government of India is committed to boosting the volume of digital transactions in the Indian economy thereby focusing on improving the strength of the financial sector, which supports in the sustainable development of the economy. As a result of the government's collaborative efforts and those of all relevant stakeholders, the number of digital payment transactions which is contributor of the Green banking initiatives, has dramatically expanded, rising from 2,071 crores in FY 2017–2018 to 8,840 crore in FY 2021–2022 (sources: RBI, NPCI, and banks official websites).
- According to the recent data released by the National Payments Corporation of India (NPCI) in the past five years, a number of simple and convenient digital payment methods, such as BHIM-UPI (Bharat Interface for Money-Unified Payments Interface), IMPS (Immediate Payment Service), and NETC (National Electronic Toll Collection), have experienced significant growth and transformed the digital payment ecosystem by increasing P2P (person-to-person) and (P2M person-to-merchant) payments. With 803.6 billion digital payment transactions worth 12.98 lakh crore recorded in January 2023, BHIM UPI has become the citizens' preferred method of payment. In contrast to September's 2022 earnings of ₹11.16 lakh crore, the 7.7% increase translated to a total transaction value of ₹12.11 lakh crore in October 2022. The number of IMPS (Immediate Payment Service) transactions for instant interbank fund transfers climbed by 4.3% from

September 2022, whilst the number of NETC FASTag transactions increased by 9.3%. 11.77 crore transactions using the AePS with Aadhaar cards were made, with a total transaction value of ₹31,112.63 crores. The Unified Payment Interface (UPI) will allow anyone with pre-approved credit lines from banks to make payments. Presently, UPI controls 75% of the nation's total retail digital payment volume. In the month of March 2023, there were almost 8.7 billion transactions.

- Sovereign Green Bonds would be issued by the Indian government to raise funds for environmentally friendly initiatives, the Union Finance Minister declared in the Union Budget for FY 2022–2023. The first sovereign green bond framework for India was developed in this context, and the Green Finance Working Committee (GFWC) was established in accordance with the framework's regulations to approve major decisions regarding the issuing of sovereign green bonds.
- Indian banks like HSBC, SBI, HDFC, and others that offer green deposit schemes will allow the banks to mobilise domestic resources into green operations and reduce greenwashing. The State Bank of India, Indian Overseas Bank, Indian Bank, and ICICI Bank will enable money transactions between India and Singapore utilising the UPI-PayNow interface. These lenders will help with both inbound and outbound remittances, according to an announcement from the Reserve Bank of India (RBI), however Axis Bank and DBS India will only help with inward remittances.

Overall, the growth of green banking in India is driven by regulatory support, increasing environmental consciousness, and the recognition of the long-term economic benefits of sustainability. The banking sector is gradually aligning its operations with environmental objectives, contributing to India's efforts towards a more sustainable and greener future.

Conclusion

To address the consequences of climate change and other environmental problems, green banks were created. There is a deadline for making the transition to clean energy if we want to avoid worst effects. Strong and economical components, including the quicker adoption of renewable energy by green banks, should be part of a complete climate policy platform. In order to effect change and raise awareness of climate protection, banks play a crucial role. Its goal should not just be ESG compliance; it should also include raising awareness and giving clients the tools they need to take action through their banking. Thus, Bank's green banking practices are a positive step towards a more equitable and sustainable financial system. By focusing on financial inclusion and responsible lending, the bank is helping to combat the negative effects of traditional banking on underserved communities. As more financial institutions adopt green banking practices, we can hope to see a more just and equitable financial system that

benefits all members of society. Overall, the discussed green banking practices serve as a model for other financial institutions to follow and demonstrate that it is possible to provide high-quality banking services while also prioritising social and environmental responsibility. With this we can hope for more banks worldwide to follow in the footsteps of these banks and launch new green initiatives.


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References

- Bhardwaj, B. R., & Malhotra, A. (2013). Green banking strategies: Sustainability through corporate entrepreneurship. *Greener Journal of Business and Management Studies*, 3(4), 180–193.
- Bihari, S., & Pandey, B. (2015). Green banking-towards socially responsible banking in India. *International Journal of Business Insights & Transformation*, 7(1), 1–17. <https://doi.org/10.5897/JEIF2014.0599>
- Bouteraa, M., bin Raja Hisham, R. R., I., & Zainol, Z. (2020). Green banking practices from Islamic and Western perspectives. *International Journal of Business, Economics and Law*, 21(5), 1–11.
- Evangelinos, K., Skouloudis, A., Nikolaou, I., & Filho, W. (2009). An analysis of corporate social responsibility (CSR) and sustainability reporting assessment in the Greek banking sector. In S. Idowu & W. Filho (Eds.), *Professionals' perspectives of corporate social responsibility* (2nd ed.). Springer.
- First Carbon Solutions. (n.d.). Top environmental problems and their impact on global business. <http://www.firstcarbonsolutions.com/resources/newsletters>
- Ganda, F., & Ngwakwe, C. C. (2014). Energy and carbon reduction practices in South African banks. *Environmental Economics*, 5(4), 8–16.
- Islam, M. S., & Das, P. C. (2013). Green banking practices in Bangladesh. *IOSR Journal of Business and Management*, 8(3), 39–44.
- Johnson, J. A., Baldos, U. L., Hertel, T., Nootenboom, C., Polasky, S., & Roxburgh, T. (2020). Global futures: Modelling the global economic impacts of environmental change to support policy-making (Working Paper No. 1236-2022-1472). <https://ageconsearch.umn.edu/record/323944/files/10281GlobalFutures2020.pdf>
- Prakash, A., Kumar, K., & Srivastava, A. (2018). Consolidation in the Indian banking sector: Evaluation of sustainable development readiness of the public sector banks in India. *International Journal of Sustainable Strategic Management*, 6(1), 3–16.
- Rahman, M. M., Ahsan, M. A., Hossain, M. M., & Hoq, M. (2013). Green banking prospects in Bangladesh. *Asian Business Review*, 2(2).

- Shaumya, K., & Arulrajah, A. (2016, December). Measuring green banking practices: Evidence from Sri Lanka. In *University of Sri Jayewardenepura, Sri Lanka, 13th International Conference on Business Management (ICBM)*. ICBM.
- Tu, T., & Yen, T. (2015). Green bank: International experiences and Vietnam perspectives. *Asian Social Science*, 11(28), 188.

Websites

- <https://www.starlingbank.com/>
- <https://www.treecard.org/>
- <https://www.aspiration.com/>
- <https://www.bunq.com/documents/personal>
- <https://www.tomorrow.one/en-EU/>
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Book Review

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Damodar N. Gujarati and Dawn C. Porter, *Basic Econometrics. Fifth edition.* 2009. New York, NY: McGraw Hill/Irvin, 946 pp.

‘Basic Econometrics’ by Damodar N. Gujarati and Dawn C. Porter offers a simple yet thorough introduction to econometrics without using advanced statistics, mathematics, or matrix algebra. The fifth edition of *Basic Econometrics* maintains the book’s tradition of fusing current research with econometric principles. It uses logical and instructive examples and statistics to demonstrate key ideas. The text’s examples and illustrations help to explain econometric concepts and applications in a way that is understandable to the readers.

The first edition of this book was released in 1978 by Gujarati, the original author. After 30 years, Porter was included as a co-author on the fifth edition, which was published in 2009. It clearly speaks about the longevity and the popularity of this book.

The writers have provided helpful concrete applications and extended the topics in the fifth edition. A few of the book’s inherently technical subject materials were provided in the appendix in a condensed version. The authors have revised the information for about two dozen of the examples and more than 20 exercises from the previous edition in addition to adding roughly 15 new examples for illustration and over thirty new chapter end exercises.

The book is useful to the students and researchers of economics, management-finance and other disciplines/fields. The book and the author’s advice on how to structure the course will be helpful to those who want to teach econometrics concepts and have flexibility in choosing topics that are appropriate for the target students.

The authors described the greater scope of econometrics, the need for a separate field of study and the eight phases in econometric methodology/technique in the introductory chapter while defining ‘What is Econometrics?’ and explaining ‘Why and How of Econometrics?’

The book is divided into two parts. The part I of the book introduces single-equation regression models. In these models, there are two categories of variables, that is, independent and dependent variables. One or more independent variable/s are expressed as a linear function of the other (dependent) variable. In such models, it is implicitly supposed that any causal links between the explanatory and dependent variables, if any, run in just one direction, that is to say from the explanatory variables to the dependent variable.

The authors addressed both the historical and contemporary/modern meanings of the term ‘regression’ in Chapter 1 and used several examples from economics and other disciplines to highlight the differences between the two meanings.

In Chapter 2, they introduced some basic concepts of regression analysis with the help of the two variables linear regression model. In this model, only one explanatory variable is used to explain the dependent variable as a linear function.

The authors continued to discuss about the two-variable model in Chapter 3 and introduced the so-called Classical Linear Regression Model (CLRM), which is a model that relies on a few simplified assumptions. In order to estimate the parameters of the two-variable regression model, they introduced the Ordinary Least Square (OLS) approach. Although OLS approach is easy to employ, it has some extremely desirable statistical properties. Further, Chapter 3 clearly distinguishes between random and fixed regressors (explanatory variables).

In Chapter 4, the authors have introduced the (two variables) Classical Normal Linear Regression Model. This model assumes that the random dependent variable follows the normal probability distribution. Under this assumption, the OLS estimators generated in Chapter 3 have a few stronger statistical properties than those of the non-normal CLRM. These statistical properties allow for statistical inference, or hypothesis testing.

The topic of hypothesis testing is covered in Chapter 5. In this chapter, they try to determine whether the calculated regression coefficients are consistent with the hypothesised values for these coefficients, which are based on previous theoretical and/or empirical research.

A few extensions of the two variables regression model are discussed in Chapter 6. This chapter discusses topics such as regression through the origin, scaling and units of measurement and functional forms of regression models such as double-log, semi-log and reciprocal models.

The authors have discussed the multiple regression model, a model with more than one explanatory variables in Chapter 7 and have demonstrated how the OLS method may be expanded to estimate the parameters of such models.

In Chapter 8, they expanded the ideas presented in Chapter 5 to the multiple regression model and pointed out some of the difficulties brought on by the inclusion of numerous explanatory variables.

Part I of the text concludes by Chapter 9, which discusses dummy or qualitative explanatory variables. The importance of not all explanatory variables having to be quantitative (i.e., ratio scale) is underlined in this chapter. Although variables such as religion, race, gender, nationality and area of residence cannot be quantitatively measured, they are important in understanding many economic phenomena.

The classical normal linear regression model was the main emphasis of Part I of the book. It also demonstrates how it might be employed to address the twin statistical inference problems of estimation, hypothesis testing and the problem of prediction. But this model is based on a few simplifying assumptions. Some of the assumptions are discussed more critically in the book's Part II.

Chapter 10 discusses one of the assumptions of the CLRM, that is, there is no multi-collinearity among the regressors included in the regression model by getting answers to the following questions: (a) What is multi-collinearity nature? (b) Is multi-collinearity really a problem? Does multi-collinearity actually pose a threat? (c) What are its practical implications? (d) How can one find it? (e) What corrective actions can be taken to reduce the problem of multi-collinearity?

Further, Chapter 10 also discusses another two assumptions of the CLRM, namely that (a) the number of regressors must be lesser than the number of observations in the sample (Arthur Goldberger termed this as the problem of micro-numerosity. It simply means small sample size.) and (b) there must be sufficient variability in the values of the regressors, for they are intimately related to the assumption of no multi-collinearity. The values of the regressors must be sufficiently variable because they are directly related to the assumption of no multi-collinearity. 'Heteroscedasticity' is the topic of Chapter 11. This Chapter discusses another important assumption of the CLRM, that is, the disturbances/the error term appearing in the population regression function are homoscedastic; that is, they all have the same variance. This chapter seeks answers to the following questions: (a) What is the nature of heteroscedasticity? (b) What are its consequences? (c) How does one detect it? (d) What are the remedial measures?

Chapter 12 discusses a key assumption of CLRM, that is, there is no auto-correlation in the error term in the regression model by elucidating answers to the following questions: (a) What is autocorrelation nature? (b) What are the theoretical and practical implications of autocorrelation? (c) How to determine the presence of autocorrelation in any given situation? (d) What are corrective actions to autocorrelation problem?

The regression model employed in the analysis is 'correctly' specified is one of the assumptions of CLRM. If the model is not 'correctly' specified, one will face the problem of specification error or model specification bias. The model specification and diagnostic testing are covered in Chapter 13. This chapter also discusses non-normal error term, missing data and random or stochastic regressors.

The authors introduced a few selected yet often used econometric approaches in Part III. In particular, the topics discussed in this part of the book include (a) non-linear-in-the-parametric regression models, (b) qualitative response regression models, (c) panel data regression models, and (d) dynamic econometric models.

A non-linear regression model is covered in Chapter 14. The authors have considered models that are intrinsically non-linear in the parameters. This chapter explains how such models are estimated and interpreted using appropriate examples. Regression models with qualitative dependent variables were taken into consideration in Chapter 15. Consequently, this chapter is a supplement to Chapter 9, which explained models with qualitative explanatory variables. The main focus of this Chapter is on creating models in which the regressand is of the 'Yes' or the 'No' nature.

Since estimating models using OLSs method, presents a number of issues, numerous other methods have been proposed. In Chapter 15, the authors considered two options, namely, the logit model and the probit model. This chapter also discusses a few variants of the qualitative response models such as the Tobit model and the Poisson regression model. Additionally, a few extensions of the qualitative response models, including the ordered probit, ordered logit and multinomial logit are briefly explained in this Chapter.

Chapter 16 focuses on panel data regression models. Such models combine time series and cross section observations. Although combining such observations increases the sample size, panel data regression models pose several estimation

challenges. In this chapter, authors have discussed only the essentials of such models and guided the readers to the appropriate references for further study.

In Chapter 17, regression models that take into account the lagged value(s) of the dependent variable as one of the explanatory factors as well as models that take into account both the current and past or lagged values of the explanatory variables were both taken into consideration. These models are called autoregressive and distributed lag models, respectively. Despite the fact that such models are quite helpful in empirical econometrics, they present some unique estimating issues because they don't follow one or more fundamental premises of the Classical Regression Model. While addressing these unique issues, the adaptive-expectations (AE) and partial-adjustment models were taken into consideration by the authors. They also take note of the criticism the proponents of the so-called rational expectations model have levied at the AE model.

The authors gave a very basic, often heuristic overview to the intricate topic of simultaneous equation models in the Part IV. In Chapter 18, the authors provided a few examples of simultaneous equation models and demonstrated the reason for the characteristic inappropriateness of the OLSs method for estimating the parameters of each equation in the model.

They considered so-called identification problem in Chapter 19. In a system of simultaneous equation containing two or more equations, it is not possible to obtain numerical values of each parameter in each equation because equations are observationally indistinguishable or look too much like one another, then there will be identification problem. Because the equations in a system of simultaneous equations containing two or more equations are either observationally indistinguishable or have an excessive resemblance to one another, there will be identification problem. It is impossible to determine the numerical values of each parameter in each equation.

Before moving on to the estimation, it is crucial to overcome the identification problem since estimation is worthless without understanding what is being estimated. The identification problem, nature, importance, principles for identification and numerous approaches to solve it are covered in this chapter.

In Chapter 20, the authors considered a few estimation methods that designed precisely for estimating the simultaneous equation models and considered their advantages and restrictions.

The authors covered some basic concepts in econometrics time series analysis in Chapter 21.

Chapter 22 discusses two methods of forecasting that have become quite prominent (a) Auto Regressive Integrated Moving Average commonly referred as the Box-Jenkins methodology and (b) Vector Auto-regression.

About one-third of the text is devoted to the linear model in terms of coverage, while another quarter is devoted to breaches of the assumptions underlying that model. The remainder of the text deals with varied topics including models for non-linear regression, qualitative response data, panel data, time series data and simultaneous equations. The book is especially good when it comes to its treatment of violations of the assumptions underlying the linear model. In the book, Gujarati and Porter first deconstruct the various violations, making explicit the implications

of each violations for the qualities of the estimators. They then offered a selection of diagnostic procedures and ways to deal with those violations.

For understanding the text of 'Basic Econometrics' by Damodar N. Gujarati and Dawn C. Porter, some fundamental college-level algebra and a reasonable foundation in basic probability are the prerequisites. However, the book includes a very little information about probability perse. An essential value-added component of a text of this nature is a well-written glossary. However, this book does not include glossaries. A Subject-Index presented at the end of the book is very useful, but this cannot substitute the glossary.

Overall, the book is an excellent text on the subject. The special feature of this book is it helps the beginners to understand 'Econometrics' without much difficulty. The text is quite useful for researchers as well because it aims to teach the content by highlighting the prospects and challenges of econometrics via the prism of applied research.

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