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A Trend of CSR Expenditure towards Sustainable Development and Issue related to CSR Implementations of Reported Companies in India

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Abstract

Introduction

In the past few years, the implementation of CSR has become integral part of the company. Companies, CSR awareness and consciousness have grown rapidly in large and medium sized companies I report a review of corporate social Responsibility spending of duration 2014-19 in India as it is made compulsory by the India government. This research paper attempts to analyse CSR expenditure and issue in implementation of CSR activities.

Research Methodology

The present study has analysed CSR activities of companies reported on MCA portal 21. The data has been taken from the year 2014-15 to 2018-19. This will help to know the trend of CSR spending which contributes in sustainable development of India. I used financial analysis technique ratio and develop table & graphs to know the CSR expenditure and make comparison between them.

Results

It has been seen that the CSR expenditure by reported companies increased year by year and CSR expenditure by companies has increased substantially by 44%. Major contribution of CSR in Education (47%) and for Health and Sanitation Initiatives (31.38%).Also identified various problems faced by companies in implementation of CSR project.

Conclusion

The study concludes that CSR spending has become mandatory, but all the companies are not fulfilling the criteria due to various problems faced by them. Government should make the strict rules for CSR in Failure .Company should deposit specified amount to government for welfare activities, Government should start audit for CSR separately to check the viability of reasons given by the companies for failure of CSR activities.

Introduction

Government was set up a HCL 2015 to suggest measure for improved monitoring or implementation of CSR policies .High Level committee was set up for CSR on 28th Sep 2018 to review the existing framework and recommended suggestion for developing best CSR policy. In last few years the implementation of CSR has been grown rapidly. Now a day's companies being responsible part of society performs various CSR activities in different areas which are to be developed ,although CSR are mandatory for some companies which are lying in the section 135 but medium sized companies also involved in this activities to build a strategic fit with the community and environment in which they operate .In 2015 the High level committee was set up for reviewing the CSR regulatory framework and after 3 year in 2018 another committee was set up to revisit the CSR framework.

Our Indian economy has grown significant in last few years. Business units are working for development of various areas of society so the role of business are changing continuously .India was the fastest growing trillion dollar economy in the world with a nominal GDP of 2.735 trillion as per recent data of world bank. Business units are working as a partner of government for developing our Indian economy by performing duties like skills development program, Sanitation, education facility, rural areas development schemes. The primary objective of CSR

was not to provide resources for sustainable development but to be a responsible corporate citizen.

Objective

- To compare CSR expenditure of last 5 year of reported companies on MCA portal.
- To compare sector wise comparison of CSR expenditure of reported companies on MCA portal.
- To analyze implementation problems of CSR activities/programs/projects faced by reported companies.

Research Methodology

The present study has analysed CSR activities of companies reported on MCA portal 21.With an objective to explore CSR spending in India , reported liable companies information are taken mainly through MCA portal and other websites like Business standard ,Time of India, outlook India and others. The data has been taken from the year 2014-15 to 2018-19.

Limitations of the study

This study was limited in nature as secondary information taken from MCA portal. The data is available for the year 2014-15 to 2018-19. The analysis is based on the reported figures on MCA 21 portal and other news portals by the companies.

Literature review

The various research paper studied and to site a few -as per Banerjee, S., & Mandal, K. (2014) in their paper titled "Is CSR Expenditure or an Investment? Empirical Examination" explained that CSR expenses are contributing more in increasing sales or profitability of the company in comparison of marketing companies CSR expenditure stimulates profitability along with development of society. In this study banks are taken said that societal expenditure has important role for profitability whereas some other factors are also responsible for profit of the top performer banks. Sharma, N., & Kundu, B. (2014) in their paper titled "A Comparative Study of Corporate Social Responsibility Practices of Selected Public and Private Sector Companies in India" has studied 10 public companies and 10 private companies for research and found that only few companies are spending as per CSR norms .private companies are spending more in various activities .CSR spending are increasing continuously with the changing scenario of the firm. Some companies have their own foundation and some expenses performing CSR activities with the help of some agenciesMukherjee, A., & Bird, R. (2016). In their

paper titled "Analysis of mandatory CSR expenditure in India: a survey" discussed the drivers and barriers of CSR expenditure of 223 corporations and found that the activities of companies to CSR spending largely changes with the size ,type and age of the ownership. This research paper suggested that government amend the rules & regulations of CSR to encourage CSR expenditure and across 223 companies the most important motivating factor for Indian Companies undertaking CSR actitivites are a concern of society and improving their public image the least important factor for them spending on csr are employee related activities. Krishnan, A (2018) in his paper tilted "Comparative analysis study on CSR expenditure in India: The case of manufacturing and service industries" discussed about the difference CSR n practices followed by manufacturing and service industry and revealed that manufacturing companies are spending more than the service industry. Companies spent more on environment activities that reduces the bad image of company by involving in such activities.

Verma, D., &Jain, N. (2019). In their paper titled "CSR stipulations of Companies Act, 2013 and actual CSR expenditure by top Indian Companies prior to its implementation: A comparative study" state that there may be some correlation between the size of companies and their percentage of CSR contribution. Large firms are contributing more in CSR activities .this study suggested that large firms are more committed to words society.

Research GAP

The research has been done till now studied CSR expenditure of top performer companies and sector wise comparison like public and private and manufacturing & service industry but in this paper I have taken all reported companies spending from 2014 to 2019 and initiative area for last five years and identifies trend of CSR expenditure of companies reported for their CSR work in India and issues related to implementation are also studied.

Data analysis & Findings

The analysis is based on the reported figures on MCA 21 portal by the companies and other news portals. In relevance with the profile as registered for PSU and NONPSU have taken for 4 years but the expenditure analysed for 5 years:

Table No: 1 Profile of Companies for CSR by reported companies

Companies liable for reporting CSR				
Profile of companies	2017-18	2016-17	2015-16	2014-15
Liable and reported companies	10868	12407	11671	9418
Companies not liable but registered under schedule III –2	716	775	1284	1000

Liable but not reported companies---1	9753	6350	5335	6130
Total No of companies liable for CSR	21337	19532	18290	16548

Source: https://www.mca.gov.in/Ministry/pdf/CSRHLC_13092019.pdf*refT2_A*

In this table total no of liable companies includes those which are mandate to fulfill CSR rules & regulations. It includes both reported for CSR and Non-reported for CSR. The companies on which Schedule III of the Companies Act is not applicable namely insurance or banking company or any company engaged in the generation of electricity or other class of company in which financial statement has been prepared as per schedule III format. It has been observed that being share of the total no of 1.Liable companies, some companies have not reported on the parameter of CSR.

Liable companies are those companies which come under section 135 of the Act.
2. Schedule III of the act gives general instruction and format for the preparation of final Account of the company.

Table No. 2 CSR expenditure by Reported companies till 2017 ***Ref -11***

	2017-18	2016-2017	2015-2016	2014-15

CSR expenditure by reported companies	NO of companies	Total CSR amount spent	NO of companies	Total CSR amount spent	NO of companies	Total CSR amount spent	NO of companies	Total CSR amount spent
PSU	335	281682	404	420126	12810	11026.63	11314	10787.5
NON PSU	10083	724911	12551	10302.39	372	3285.4	270	2539.19
Grand Total	10418	10065.93	12955	14503.65	13812	14312.03	11584	13326.69

Source: https://www.mca.gov.in/Ministry/pdf/CSRHLC_13092019.pdf

In this table the CSR expenditure has been analysed and presented .It has been observed that the CSR expenditure by reported companies increased by 44% from the 2014-15 to 2015-16 and then increased in the year 2016-17 .further it has declined by 6.9% in the 2017-18 besides that no of reporting companies has increased in 2014 till 2016-17 and decreased in 2017-18.CSR expenditure is the sum of the amount spent by the company in all its projects related to schedule VII during 2014-17.CSR amount spent by the companies included all the expenditure made by companies in all areas of CSR schedule of VII.

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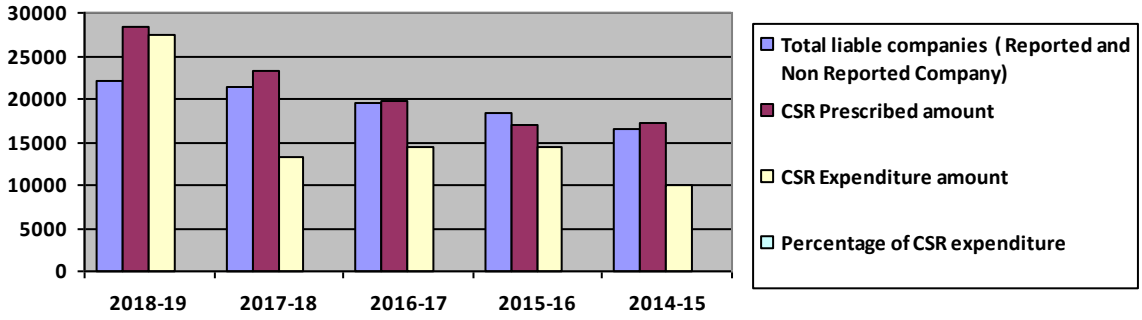
Table No. -3 Corporate Social responsibility prescribed amount and CSR expenditure *Ref -12*

Particulars	2018-19	2017-18	2016-17	2015-16	2014-15
Total liable companies (Reported and Non Reported Company)	22190	21337	19532	18290	16548
CSR Prescribed amount	28279.89	23247.59	19789.9	17044.45	17140.42
CSR Expenditure amount	27431.5	13326.69	14312.03	14503.65	10065.93
Percentage of CSR expenditure	97%	57%	72%	85%	59%



Source:

1.https://www.indiabriefing.com/news/corporatesocialresponsibilityindia5511.html

2. https://www.business-standard.com/article/companies/companies-spent-rs-11-867-cr-on-csr-activities-in-fy19-highest-so-far-119121200394_1.html

In this table prescribed expenditure are compared with actual expenditure for all the 5 year .It is noted that culture of being responsible towards society is adopted by more and more companies year by year. It has been observed that CSR expenditure by companies has increased substantially by 44% from the year 2014-15 to 2015-16 and thereafter declare in 2016-17. Again in 2018-19 no of liable companies and their expenditure was increased which shows a move of society welfare step of the companies working in India. It has been observed in last five there is some notable reason responsible for less spending in CSR or difference between Prescribed and actual expenditure of the firm. Company does not find CSR experts or Proper agency for preparation and implementation of CSR projects and some project are started for Long term because of that their expenses cannot be calculated for a particular year. Even though companies are hiring CSR experts than also experts are not able to make perfect project for proper implementation.

Table 4: Sector wise CSR expenditure from 2014 to 2018, *Ref[T4_A, B)]*

	2018	6520.0	27600.52	47.89
	2017	6351.67		

Educational activities -skill development Programm , Education for differently abled Livelihood	2016	6192.88		
	2015	5100.43		
	2014	3435.54		
Health and Sanitation Initiatives (Including Swachh Bharat Kosh)	2018	3242.1	18088.5	31.38
	2017	3412.35		
	2016	3841.05		
	2015	4953.21		
	2014	2639.79		
Heritage ,Art and Culture	2018	175.3	919.9	1.595974
	2017	202.5		
	2016	305.56		
	2015	119.17		
	2014	117.37		
Skill Development Initiative -Women ,Empowerment ,Reducing Inequalities	2018	785.3	3753.3	6.511763
	2017	484.4		
	2016	467.9		
	2015	341.82		
	2014	189.92		
Rural Development (Including Slum Area Development)	2018	1,322	2037.55	3.535034
	2017	402.78		

	2016	577.1		
	2015	552.39		
	2014	505.28		
Prime Minister's National relief Fund and any other fund (Technology Incubator and armed forces overheads)	2018	8,691	5239	9.089368
	2017	551		
	2016	1078.5		
	2015	1655.14		
	2014	1954.18		
Total			57638.77	

Source:

1. https://www.outlookindia.com/newsscroll/coronavirus-outbreak-hotlines-set-up-for-assistance-to-indians-in-china/1715935?scroll

2. https://timesofindia.indiatimes.com/business/india-business/companies-cut-csr-spends-on-national-heritage-by-56/ articleshow /73752343.cms

In the last five years the major amount of CSR spent on Education (47%) and second for Health and Sanitation Initiatives (31.38%) and next on prime minister relief fund and other category are mentioned by the companies .It has been observed that CSR spending of all the sector are increasing but declined spending on heritage art and culture by 10% in 2018-19. Now a day's company can

contribute a large amount in prime Minister Relief fund, Swachh Bharat Kosh, Clean Ganga Fund and any other set up by central government for socio economic development.

Issue Faced By Companies In Implementation Of CSR

Under Section 135 if any company fails to spend prescribed amount the board has to give report with specified reasons for not spending the amount under clause (o) of subsection. Major reasons reported in last 5 years by the companies for not spending prescribed amount are:

2014-15

- Suitable project not found
- First year of CSR activities
- Multiyear projects
- Suitable implementing agencies not found
- Delay in implementation of Plan

2015-16

- Suitable implementing agencies not found
- Delay in implementation of Project
- Suitable project not found

- Delay in project selection

2016-17

- Suitable project not found
- Multiyear projects
- Delay in implementation of Plan
- Imperfection due to new initiative

2017-18

- Delay in implementation of Project
- Multiyear projects
- Inability of company to make a well planned CSR policy

2018-19

- Delay in implementation of Project
- Multiyear projects
- Agency or Perfect channel not found for CSR policy implementation

Above mentioned reasons were actual hindrances faced by companies in CSR initiatives. These reasons were mentioned by companies on report submitted to

government .Now see the problems pace is reduced but till now existence which shows there is lot of space to do the work.

Conclusion & Recommendations

The study concludes that out of the liable companies spent 2% or above 2% of PAT of financial year 2014 to 2019. So it has been observed that although CSR spending has become mandatory, all the companies are not fulfilling the criteria. In some cases companies don't even spend 1% of their PAT on CSR also there is no penalty for the companies not spending 2% if they don't meet the standard. They will have to give reasons of failure only .Government should make the strict rules for CSR and stick with them at any condition if the companies have profit and not able to make and execute project for CSR due to any reason in that situation company should give specified amount to government for welfare activities ,because many times company did not found agency or could not make the plan by their own .Government should start audit for CSR separately to check the viability of reasons given by the companies for failure of CSR activities. For all the firms which are lying in this category ,there HLC recommended to align CSR provision with income tax laws .Company should hire local people for design the project and proper implementation also and give them Some remuneration and kind of benefit to them for their work. This way company can reduce their expenses of hiring large no of highly paid employees or agencies .Company can perform this CSR task with

few experts with the collaboration of local people or beneficiaries .This will create the goodwill of the company by providing the financial support to localities rather than expensing on agencies and as well as fulfill the CSR objective. With the support of local people company can design and implement the CSR project in better way as per the need of that area. The unspent CSR amount for a particular year should be transferred to a separate account so the company can earn the interest on that and again that increased fund may be used for innovation and high impact factor project . A CSR interactive portal should be developed for all the stake holders and beneficiaries by leveraging the benefits of digitalization and technology enchantments to achieve the objective of CSR and reduce the hindrance in implementing CSR.

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FDI Spillover Effect, Local Cooperative Ties and Innovation - Evidence from cross-regional data in South China

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ABSTRACT: This study investigates the role of local cooperative ties in local firms' innovation performance in the presence of FDI spillover effects in two industrial clusters of domestic firms in Guangdong, China. It is found that local cooperative ties play a moderating role between FDI spillover effects and innovation performance. Furthermore, the study shows that the moderating effects of local cooperative ties work in different ways in the Pearl River Delta region and the Chaoshan region.

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Introduction

In the recent years, China has become an innovation-driven country. Both inward FDI and outward FDI from China contribute positively to firms' innovation performance (Cozza et al.,2015; Huang et al., 2017; Zhang, 2017). Through recent observations of Small and Medium Enterprises (SMEs), learning and innovation have been the main ways to promote the firms' competitive ability. As an approach to cultivate and promote competitiveness, cooperation and competition with foreign enterprises and local partners has posed a challenge for SMEs.

Geographical clustering, which is the typical network organization of SMEs, achieved great success in developed countries and regions, such as Italy, Japan and Taiwan of China. Similar to this classical clustering above, a new kind of geographical clustering also promoted local businesses in South China, where most of the local SMEs were developing under the circumstance of FDI enterprises. Since China's reform and opening up, many foreign enterprises have settled in southeast coastal zone in China, where industrial clusters including shared domestic and foreign ownership enterprise clusters were formed. In these clusters, enterprises received much knowledge and information, which may have come from spillovers of FDI enterprises, sharing information among business associations, or

support by local institutions. The key to achieving independent innovation for Chinese local private enterprises is to constantly study and incorporate external knowledge instead of merely increasing investment on research and development (Keller, 2004).

In the past 30 years, FDI enterprises embed in local industrial clusters and involuntarily diffused latest information and knowledge through their interactions with local firms. Information and technology diffusion helped local enterprises promote their innovation performance indirectly. This implies that spillovers as a result of inward FDIs contributed positively to the productivity of China's innovation activities (Zhang, 2017). To distinguish from the effects of outward FDI, this study focus is on the effects of inward FDI.

According to social capital theory, foreign invested companies play a principal role in improving local enterprises' competence and innovation performance by triggering off organizational learning and transfer of knowledge and technological know-how (Borenztein et al., 1999). FDI spillover brings out horizontal spillover effects among the industries and vertical spillover effects inside the industry. Previous studies have made empirical analyses on how these spillover effects of foreign owned enterprises facilitate local firms' innovation either from the perspective of macro level (Blomstrom and Sjoholm, 1999; Qi and Li, 2008) and

micro level (Lau et al., 2010; Tsai and Tung, 2014), or of developed countries (Dana et al., 2014) and developing countries (Sajid and Sizhong, 2015). Similarly, for different members in a local industry cluster - local suppliers, local clients, local universities, and local government - may share mutual beneficial information among them. Therefore, for different mutually beneficial information of different members, many studies distinguished the role of local businesses, institution ties, or networks, and made empirical analyses on the relationship between different cluster ties (or networks) and innovation performance (He and Rayman-Bacchus, 2010; Fang and Guo, 2013; Cai et al., 2014). Since knowledge spillovers from foreign-invested companies are not automatically turned into local enterprises' innovation performance, it is required that local firms have a certain ability of acquiring, transferring, updating, renewing and applying spillover knowledge. Thus, absorptive capability, playing an important role in organizational learning and innovation, could be examined as a moderator (Zaheer and Bell, 2005; Wu et al, 2007; Branka et al., 2014).

For local enterprises in an industrial cluster close to FDI enterprises, they have many sources of information, including different FDI spillover knowledge and sharing information through local ties. But is spillover knowledge or sharing information produced at the same time? Do different kinds of information play the same role no matter where they come from? How do local SMEs get external

information? How is absorptive capability measured during the process from information acquirement to knowledge transfer? Should the measurement be different among cross-regions?

To answer the above questions, previous studies investigated these issues, but such research were limited. Firstly, most of the empirical studies measure absorptive capability by R&D investment or proportion of research staffs (Guo and Wang, 2014). However, there are few research sectors or staffs working for local SMEs in South China. After obtaining information from external networks, they are more likely to seek help from local business partners within the clusters, local universities, and the local government. That is, local enterprises develop innovation through imitation, improvement, and integration with the help of local cooperation. Secondly, most of the previous studies use large samples to test the relationship between FDI spillover and innovation performance. But their findings were inconsistent (Lee and Lee, 2001; He and Rayman-Bacchus, 2010; Fang and Guo, 2013; Cai et al., 2014). The effects of FDI spillover on innovation performance may be different among different regions because the effects of FDI spillovers may be linked to particular investment environment, cultural background, government policies, and talent management across different regions and zones. With respect to the studies above, this paper aims to contribute to the body of literatures along the effects of FDI spillover on innovation.

In this paper, we propose a conceptual model where local cooperative ties plays a moderating role when information from FDI spillover is obtained, absorbed and transferred into production by local SMEs. Local cooperative ties include local business ties, local government ties and universities ties, which promote knowledge flow in local SMEs. It is the strength of local cooperative ties that become an index to measure absorptive capability. To validate our model, estimations will be carried out by adopting the survey data in Guangdong province. As referred above, FDI has embedded more widely and enterprises clusters have typically developed in Guangdong province. In this paper, the two different regions, Pearl River Delta region and Chaoshan region, are chosen to investigate the roles of local cooperative ties because differences exist between these two regions with respect to business environment, culture, local government policies and talent management. Based on empirical analysis, our findings seek to contribute to enriching the relevant studies. Furthermore, it would provide insights towards the effective enhancement of absorptive capability and innovation performance for local enterprises.

The remaining part of this paper is organized as follows: The literature review section introduces some key concepts of this study and proposes hypotheses linking FDI spillover effects to local cooperative ties and innovation performance of local firms from industrial clusters close to FDI enterprises. The methodology section presents the conceptual model, questionnaire measurements and sample. Major

research findings are summarized in the results section. Finally, the paper will conclude with a discussion on the findings and suggestions for the future research.

Literature review and hypotheses

In social capital theory, FDI spillover networks are considered as a storehouse with potential, static, and valuable information and resources. Moreover, enterprises and their partners in the external networks can exchange mutually beneficial knowledge, technology and experience.

FDI spillover effects

The horizontal spillover effects, resulting from demonstration, labour-mobility and competition, are likely to occur in the exchange between foreign-invested companies and local enterprises. The ways, by which local enterprises obtain new information from foreign-invested partners, positively affect the innovation performance. For example, industrial clusters close to FDI enterprises have higher innovative capability and better performance of local enterprises by continuous knowledge exchange with FDI firms (Park, 2014). It was found that horizontal spillover effect has stronger effects on the indigenous innovation in three ways (Li et al., 2001; Wang et al., 2017). Firstly, information and knowledge are transferred from foreign affiliates to domestic firms through communication and cooperation. This is called demonstration effect (Kim and Li, 2014). Secondly, foreign affiliates

often offer their local staffs opportunities to get training or to opt for further education, and labour-mobility effect occurs once employees become domestic employers or run their own business after training and further education (Gerschenberg, 1987; Zhang,2019). Thirdly, more severe competitions in the local market force local firms to reform and to pursue innovation in order to keep pace with foreign affiliates (Lutz and Talavera, 2003; Xu et al., 2014). This is called competition effect.

Many empirical studies on horizontal spillover network were conducted in emerging economies. Cross-country companies improve the innovative capability of host enterprises by labour-mobility spillovers, and it is necessary for host countries to possess absorptive capability during the knowledge conversion (Gerschewski, 2013). Thus, there is a positive relationship between horizontal spillover effects and the innovation performance of local private enterprises (Long et al., 2014).

Based on the data collected from emerging economies, it is found that cooperation between foreign affiliates and local enterprises facilitates the productivity of local enterprises (Negara and Adam, 2012). Productivity spillovers are found to take place through backward linkages (contacts between foreign affiliates and their domestic supplier) and forward linkages (interactions between foreign suppliers of

intermediate inputs and their domestic countries). Usually, foreign-invested companies choose local suppliers when investing in certain host countries. In order to improve technology and innovation output of local enterprises, foreign-invested companies build connections with local enterprises to set down technical standards and offer guidance (Smarzynska, 2004; Wang & Wu, 2016). In addition to the link with suppliers, the entry of foreign affiliates help local firms, especially downstream enterprises, get access to high quality intermediate goods market at a low price, so that this makes it possible for indigenous innovation in subsequent production process (Goldsmith and Sporleder, 1999). During their interactions, foreign-invested companies spill latest knowledge and information to local enterprises (Shi et al., 2014).

These two different kinds of vertical cooperation ties help to promote technology progress and updating information of local firms in host country markets (Markusen and Venables, 1999). As for two different vertical cooperation ties of local enterprises and foreign enterprises, to examine whether they help to promote innovation performance of local enterprises, many studies have built up theoretical models and made empirical analysis (Liu, 2006; Qi and Li, 2008; Tsai and Tung, 2014; Scutaru, 2015).

However, horizontal spillover from foreign enterprises slows down upstream vertical cooperation, while it plays a positive role in downstream vertical cooperation (Kokko and Thang, 2014). Furthermore, building a theoretical model with knowledge flowing between foreign enterprises and local enterprises, it is found that cooperation between local enterprises and foreign partners improved local innovation performance (Christoffersen, 2013; Song & Zhang, 2017).
Thus, we can classify FDI spillover effects into horizontal spillover effect and vertical spillover effect in order to distinguish their roles. In brief, these are:
Hypothesis 1a Horizontal spillover effect positively affects local firms' innovation performance.
Hypothesis 1b Vertical spillover effect positively affects local firms' innovation performance.

Local cooperative ties

Geographical clustering helps local firms to reduce the cost of innovation, increase management efficiency and extend the market. In the local cluster, turnover rate rises which leads to higher requirements on the quality of labour force, as well as promoting the further spread of information and ideas, and ultimately creates conditions conducive to technological innovation for these enterprises (Michael 2000). Additionally, to explore the positive effect of local business ties on enterprises innovation performance or innovative capabilities, many studies tested

the above effects in different countries and areas (Samson, 2005; Fang and John, 2013). A sTable cooperation business ties through cooperation between local clustering enterprises and suppliers can improve the absorptive capability and the development of new products (Saeed et al., 2014).

Besides local business ties, government ties and universities ties are regarded as important factors which influence a local firm's indigenous innovation (Lee and Lee, 2001). On the one hand, government ties play an important role in improving local firms' absorptive capability and indigenous innovation. Government ties support the development of enterprises through policy and financial support in local industry cluster indigenous innovation (Liu et al., 2013; Silva et al., 2014). On the other hand, local enterprises are usually settled in a place where there are many institutions, colleges and universities, because they would benefit from the collaboration with universities around them, and finally improve their innovation performance and absorptive capability. (Gao, 2008; Tsai and Wu, 2011). Thus, we propose:

Hypothesis 2a Local business ties positively affects local firms' innovation performance.

Hypothesis 2b Government ties positively affects local firms' innovation performance.

Hypothesis 2c Universities ties positively affects local firms' innovation performance.

Interaction between FDI spillover effects and local business ties

According to corporate social capital theory and resource-based view, new knowledge spreading in external networks owns potential resources of local enterprises (Cohen and Levinthal, 1990; Uzzi, 1996). However, whether it can convert to innovation efforts depends on the absorptive capability of local enterprises. Most of the empirical studies showed that external networks can affect enterprises' innovation performance indirectly, although the studies on FDI spillovers found that new information and knowledge can be easily disseminated among enterprises. Furthermore, the extent to which local firms can benefit from foreign resources also depends on absorptive capability of local firms. Using data collected from 174 enterprises in China, Gao et al (2008) investigated the causal relation between FDI, local enterprise network and innovation performance, and found the moderating effect of absorptive capability on external networks and innovation performance. The similar moderating effect of absorptive capability is also tested by Wu et al (2007) and Liao (2015).

However, since few local small and medium enterprises has their own R&D institutions or sectors, during transition period in many developed economics,

SMEs' capabilities of integrating new information and promoting innovation are enhanced through cooperating with business ties (Branka et al., 2014). For example, among the leather-shoes manufacture enterprises in developing countries, local business ties contributed to the improvement of absorptive capability and innovation performance in a cluster (Gebreeyesus et al., 2013). Again, in Chinese automobile clusters, business cooperative ties also positively affect absorptive capability, and consequently improve innovation performance (Sherzod and Zhao, 2014). Based on the above analysis, we propose that:

Hypothesis 3 Local business ties have a moderating effect on the relationship between FDI spillover effects and local firms' innovation performance. FDI spillover effects include horizontal spillover effects and vertical spillover effects.

Interaction between FDI spillover effects and government ties

Once local enterprises find it difficult to undertake R & D and develop innovation even when they obtain new information from foreign-invested firms, they tend to seek government support. Thus, government decisions affect the conversion of information and knowledge in local firms. As mentioned above, local firms' innovations can be promoted and undertaken by the joint forces from government policies, service systems and financial supports. On their own initiatives, local firms are active to search for fiscal subsidies, funds, and other support from the government. This can help local firms absorb spillover information and convert

them into innovation performance (Falk, 2005). First, government policies help local enterprises gain information outside the cluster and learn to imitate them (Conle and Taube, 2010). Second, government provides local firms financial supports to develop re-innovation through absorbing, converting information and knowledge, which promote further efforts to initiate innovation (Liu et al, 2013). Some empirical studies highlighted that besides government, institutions play an important role in firms' innovation through collaboration and guidance via geographical clustering. These ties between institutions and firms promote the absorptive capability, and consequently promote innovation performance (Zheng, 2013 Shen et al., 2019). SMEs innovations seldom take place in a closed environment. Local enterprises in an industrial cluster, especially close to FDI enterprises, have more chances to get new information from their foreign partners, and take opportunities to cooperate with the external organizations such as government and universities to develop new products (Gao, 2008; Cuadros & Alguacil, 2014). It is found that innovation performance of local enterprises could be improved through cooperative ties linking local enterprises with colleges, institutions and government (Patricia et al., 2013). Based on the above analysis, we propose that:

Hypothesis 4 Government ties have a moderating effect on the relationship between FDI spillover effects and local firms' innovation performance. FDI spillover effects include horizontal spillover effects and vertical spillover effects.

Interaction between FDI spillover effects and universities ties

According to the study by Hatch and Mowery (1998), institutions, such as colleges and universities, are important locations of scientific research where new information and knowledge come out. That is the reason why firms' R&D departments usually settled down next to the universities. In contrast, their laboratories for product development often settled down near their workshops. The cooperation between universities and firms can integrate spillover knowledge to build up a knowledge absorptive system, which will have positive effects on the firms' innovation performance (Kahn, 2001; Bucklery and Carter, 2004; Branka et al., 2014). The more universities there are around local firms, the higher the degree that local firms will cooperate with universities and the greater the improvement of their absorptive capabilities (Gao, 2008; Köymen & Sayek, 2017).

Therefore, given the potential synergies resulting from the interactive integration of FDI spillovers and universities ties, as well as the positive effects of both FDI spillover and universities ties on innovation performance, it is expected that universities ties have a moderating effect on the relationship between FDI spillover effects and innovation performance. Up to now, there are few, if any, studies conducted in the context of industrial cluster close to FDI enterprises. Accordingly, the following hypothesis is set forth in a Chinese context:

Hypothesis 5 Universities ties have a moderating effect on the relationship between FDI spillover effects and local firms' innovation performance. FDI spillover effects include horizontal spillover effects and vertical spillover effects.

Methodology and Data

Conceptual model

According to the hypotheses proposed above, the conceptual model shows the mechanism driving the effects of FDI spillover and local cooperative ties on local firms' innovation performance (shown in figure 1). As foreign capital enters into local markets, foreign-invested firms bring new technology and managerial experience which may spillover to local firms throughout the industries or among the industries. However, since few of local firms have their own institutions, they could not convert these creative ideas into innovation. Instead, they may try their best to find support from local business partners, local government and local universities and institutions, with whom local firms cooperate by way of synergies, financial services and technology transformation. The closer connections local firms build up with local partners, government and universities the greater the spillover effects it produces on innovation, and the better the innovation it performs.

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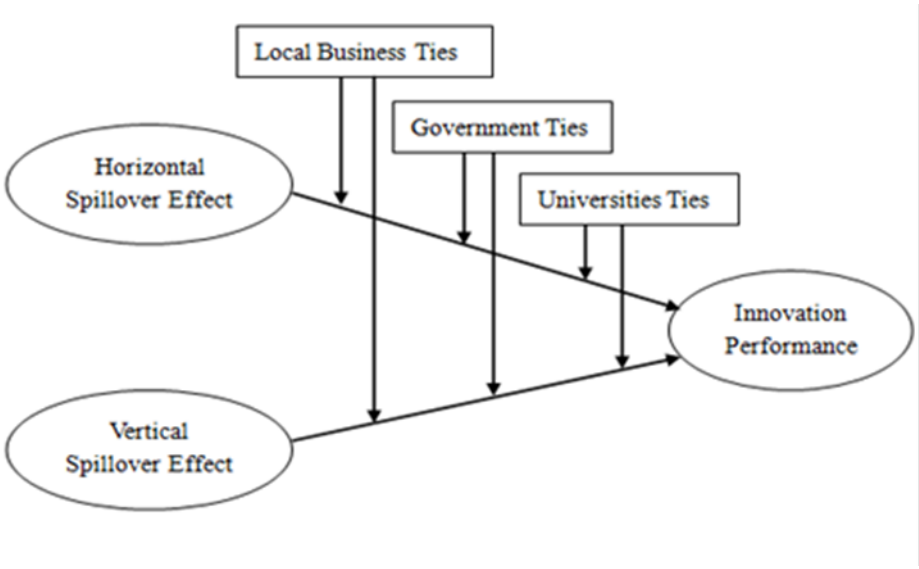

Figure 1 Conceptual model for research framework

Questionnaire measures

A questionnaire with 33 items is designed for conducting the following empirical analysis. All the items were extracted or adopted from previous studies, translated into Chinese and rearranged in line with the analytic framework of this study. To ensure compatibility and consistency of the survey questionnaire, reverse translation and further modifications are also made. Respondents rated their perceptions of the items using seven-point Likert scale, ranking from 1(which stands for "strongly disagree") to 7 (which stands for "strongly agree"). Using the

initial draft of the questionnaire, a small-scale pilot test is conducted on ten firms, and wording is refined to improve the clarity of the questionnaire.

Adopting the concepts proposed in previous studies (Thompson, 2002; Lee and Lee, 2001; Gao et al., 2008; Cooke and Clifton, 2002), each questionnaire consists of three parts. The first part includes eleven items aiming to measure FDI spillover effects. This study specified horizontal spillover effects as a second-order construct, measured by the three first-order constructs of demonstration effect, competition effect and labour mobility effect. Demonstration effect refers to one where domestic firms learn from their observation of foreign investor's actions. Competition effect refers to one where domestic firms are pushed to modernize in order to keep pace with foreign investors. Labour mobility effect refers to one where qualified employees transfer new knowledge when they go to work in the domestic firms or start their own businesses. Similarly, vertical spillover effects are specified as a second-order construct, measured by two first-order constructs of forward linkage and backward linkage effect, referring to the cooperation denoted as a direct link between foreign investor and domestic firm.

Meanwhile, the second part comprises of sixteen items to measure local cooperative ties. This study specified local business ties as a second-order construct, measured by the eight first-order constructs of intensity, scale, and reciprocity with the local suppliers and clients. Similarly, local government ties are

specified as a second-order construct, measured by the four first-order constructs of intensity, scale, and reciprocity with local government sectors. Local university ties are specified as a second-order construct, measured by four first-order constructs of intensity, scale, and reciprocity with local universities or scientific research institutions.

Then, the third part contains six items to measure innovation performance. The study adopts an indirect and subjective approach, which could be a reasonable substitute for the objective measure of innovation performance. Specifically, a subjective measure of innovation performance has been used to test the improvement of overall innovation performance over the last three years.

Sample and validity

500 questionnaires were distributed to local firms in the following regions in Guangdong province: Pearl River Delta region and Chaoshan region. They are two of the most developed regions in China. Respondents are typically chosen from the middle and senior managers, as well as the leaders, who have a better understanding and experience in trade and technology management. Of the distributed questionnaires, 343 questionnaires were regained altogether. Furthermore, 39 responses are eliminated according to the following criteria: (a) respondents who and whose firms seldom cooperate with foreign-invested

companies in the recent years (b) missing values and (c) respondents work or run business in current firms less than 1 year. The remaining 304 responses are qualified.

In terms of the validity of the questionnaire, it should be accepted if the respondent rate reaches 20%, while the personnels filling the questionnaires were senior managers (Gaedeke & Tootelian, 1976). Our respondent rate is 60.8%, which meets the above criteria. Furthermore, content validity is taken throughout all the items. Convergent validity, which measures construct identity, can be judged by looking at the item factor loadings. Each factor loading for the multi-item variables of local business network, local institution network, horizontal spillover network, vertical spillover network, absorptive capability and innovation performance is significantly related to its underlying factor. All standardized item factors loading are well above the cut-off of 0.50, which shows that the measures demonstrate adequate convergent validity. Additionally, all of the Cronbach's exceed 0.85, indicating that measuring items of the related variables in the study are internal consistent and highly reliable. So, the measures we construct are verified to be adequate.

In addition, to account for the effects of extraneous variables we take into account firms' size, age, industry type and geographical location as control variables. Firstly, the characteristics such as large enterprises, elder firms, competition in hi-

tech industry and location at Pearl River Delta region, usually enhance local firms to be more powerful than those in the other areas. Moreover, these firms also have some advantages in gaining resource for their business operations and innovation activities (Ettlie & Rubenstein, 1987; Luo, 2003). Noting that, we use dummy variables to differentiate these control variables (0="less than 100 employees", 1="more than 100 employees"; 0="less than 7 years", 1="more than 7 years"; 0="traditional industry", 1="hi-tech industry"; 0="Chaoshan community", 1="Pearl River Delta community").

Table 1 Demographic characteristic of the sample firms

Object	Pearl River Delta area (Guangzhou, Shenzhen, Dongguan, Huizhou)	Chaoshan area (Shantou, Chaozhou, Jieyang)
Number of the samples	132	172
Proportion of foreign investment in Taiwan & Hongkong & Macao	60%	82%
Local language	Cantonese	Teochew
National policies support	(1) Special Economic Zone (1980) (2) Experimental free-trade zone (2014)	(1) Special Economic Zone (1980)
Chief industries	Textile & Garment, Toy, Chemical products, Packaging & Printing	Electronic components, Information and communication equipment, New material
Universities	There are 90 colleges and universities	There are 5 colleges and universities

Resource: Statistical Yearbook of the Seven Cities, 2014

As shown in Table 1, this study chooses local firms in the above seven cities where the reform and opening-up policy started and expanded in Guangdong. In the past 30 years, these firms benefited from this policy and took one step ahead to cooperate with foreign-invested companies. Chaoshan region, encompassing the three main cities of Shantou, Chaozhou and Jieyang is famous for their overseas Chinese. Up to now, 82% of the foreign-invested enterprises in Chaoshan are Hongkong-Macau-Taiwan invested firms, while Hongkong-Macau-Taiwan invested firms amount to 60% of foreign-invested enterprises in Pearl River Delta

region. Noted on the map, these two regions are located close to Hongkong, Macau and Taiwan, considered to provide a geographical advantage (for these two regions). In addition, as hometowns of overseas Chinese, these two regions became preferred places for investments by overseas Chinese. But noting the difference between these two regions, we find that the composition of foreign-invested firms is more diverse and open.

Results

Correlation analysis

Table 2 Descriptive statistics and correlations among constructs

Variable	Mean	S.D.	1	2	3	4	5
1.Innovation performance	4.93	0.92	1				
2. Local business ties	5.29	1.04	0.327***	1			
3. Government ties	4.71	1.18	0.203**	0.251***	1		
4. Universities ties	4.43	1.49	0.170*	0.275***	0.245***	1	
5. Horizontal spillovers	5.19	1.07	0.413***	0.183**	0.272***	0.192**	1
6. Vertical spillovers	4.83	1.10	0.191**	0.201**	0.162*	0.143	0.182**

Note：* P < 0.10、** P < 0.05、*** P < 0.01

As Table 2 shows, the positive and statistically significant correlations among variables are found. This suggests that both FDI spillover effects and local cooperative ties can help the local firms to promote innovation performance and vice versa.

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Hierarchical regression analysis

Table 3 Results of hierarchical regression models: Full sample

Variable	Full sample				
	Model 1	Model 2	Model 3	Model 4	Model 5
Firm size	0.176**	0.163*	0.143	0.135	0.130
Firm age	-0.043	-0.021	-0.015	-0.010	-0.016
Industry type	0.243***	0.216**	0.186**	0.193**	0.188**
Geographical location	0.133	0.185**	0.172*	0.165*	0.169*
Horizontal spillover effect		0.283***	0.291***	0.297***	0.288***
Vertical spillover effect		0.193**	0.187**	0.175**	0.183**
Local business ties		0.241***	0.263***	0.248***	0.258***
Government ties		0.176**	0.184**	0.189**	0.178**
Universities ties		0.112	0.124	0.115	0.126
Horizontal spillover effect× Local business ties			0.197**		
Vertical spillover effect× Local business ties			0.134		
Horizontal spillover effect× Government ties				0.257***	
Vertical spillover effect× Government ties				0. 227**	
Horizontal spillover effect× Universities ties					0.106
Vertical spillover effect× Universities ties					0.141
R^2	0.046	0.288	0.379	0.391	0.377
$\triangle R^2$		0.242	0.091	0.103	0.089
F	0.934	10.841***	8.892***	8.646***	9.235***

Note：* P < 0.10、** P < 0.05、*** P < 0.01

Table 3 shows the results of hierarchical regression analysis estimating the effects of local cooperative ties and FDI spillover effects on a local firm's innovation

performance. As shown in model 2, the coefficient of the regression for horizontal spillover effects and innovation is positive and significant ($r=0.283$, $p<0.01$), and the coefficient of vertical spillover effects and innovation is positive and significant too ($r=0.193$, $p<0.05$). Hence, both Hypothesis 1a and Hypothesis 1b are supported.

Hypothesis 2 (including 2a, 2b, 2c) predict the direct effect of three local cooperative ties (including local business ties, government ties, universities ties) on innovation performance respectively. As we see in model 2, both coefficients for local business ties and government ties are positive and significant ($r1=0.241$, $p<0.01$; $r2=0.176$, $p<0.05$). Whereas the coefficient for universities ties is not significant ($r=0.112$, $p>0.10$), indicating that universities ties do not significantly contribute to local firms' innovation. Hence, Hypothesis 2a and Hypothesis 2b are supported but Hypothesis 2c is not.

Hypothesis 3, 4 and 5 state that local business ties, government ties and universities ties moderate the relationship between FDI spillover effects and innovation performance. To test these hypotheses, we multiply FDI spillover effects by local cooperative ties separately and introduce the multiplicative interaction items into the regression. Before the regression analysis, we mean-center the variables and re-

run the regression to minimize any distortion due to high correlations between the interaction term and its component variables. The coefficient of the interaction of local business ties and horizontal spillover effect is positive and significant ($r=0.197$, $p<0.05$). Whereas the coefficient for the interaction of local business ties and vertical spillover effect is positive but not significant ($r=0.134$, $p>0.10$). Hence, Hypothesis 3a is supported and Hypothesis 3b is not supported. Meanwhile, both coefficients of the interaction of government ties and FDI spillover effects (including horizontal spillover effect and vertical spillover effect) are positive and significant ($r1=0.257$, $p<0.01$; $r2=0.227$, $p<0.05$). Hence, Hypothesis 4 is supported. As shown in model 5 in Table 3, both coefficients of the interaction of universities ties and FDI spillover effects (including horizontal spillover effect and vertical spillover effect) are positive but not significant ($r1=0.106$, $p>0.10$; $r2=0.141$, $p>0.10$). Hence, Hypothesis 5 is not supported.

Based on the above, it is found that local cooperative ties play a moderating role between FDI spillover and innovation performance, except for universities ties. The close ties of local cooperation improve local firms' absorptive capability, which further enhances the conversion of FDI spillover effects into innovation performance. In details, the moderating effect of local cooperative ties is partially validated. Local business ties play no moderating role between vertical spillover

effects and innovation performances. Universities ties have no direct effects on FDI spillover effects and innovation performances.

Noted that the geographical location dummy variable is positive and significant, it means that innovation performance is better in Pearl River Delta region than in Chaoshan region. This suggests these two sub-samples should be tested separately. In addition, local firms in these two clustering zones possess totally different investment environment: in the Pearl River Delta region, the dialect is Cantonese, and industrial clusters form following with the competition between Hongkong-Macau-Taiwan-invested firms and other foreign invested firms; while Teochew originated in Chaoshan region is the dialect spoke by people of the Minnan (Southern Min), and industrial clusters mainly consist of Hongkong-Macau-Taiwan-invested firms. Thus, spillover information and resources are different between these two regions even though local firms benefit from FDI spillover in both regions. Besides, local SMEs cluster in both regions, but the Pearl River Delta region is full of high-tech industries, universities and institutions, as well as higher value-added industries in the clusters. Local governments also provide great supports to local firms. Therefore, it is reasonable to test the effect of FDI spillover effects, local business ties, government ties, and universities ties on innovation performance separately in these two different regions.

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Table 4 Results of hierarchical regression models: Comparative analysis

	Pearl River Delta area			Chaoshan area		
	Model1	Model2	Model3	Model4	Model5	Model6
Horizontal spillover effect× Local business ties	0.188**			0.283***		
Vertical spillover effect× Local business ties	0.077			0.143		
Horizontal spillover effect× Government ties		0.259***			0.154	
Vertical spillover effect× Government ties		0.181**			0.116	
Horizontal spillover effect× Universities ties			0.109			0.083
Vertical spillover effect× Universities ties			0.186**			0.063

Note：* P < 0.10、** P < 0.05、*** P < 0.01

We can see from the comparative analysis results in Table 4. Model 1 and model 4 show the results estimating the effects of local business ties and FDI spillover effects (horizontal spillover effect and vertical spillover effect separately) on a local firm's innovation performance in Pearl River Delta region and Chaoshan region. As shown in model 1 and model 4, the coefficients of the interaction of horizontal spillover effect and local business ties in both regions are positive and significant (r1=0.188, p＜0.05; r2=0.283, p＜0.01), indicating that the effect of horizontal spillover effect on innovation performance is dependent on a local firm's local business ties to other local firms in both regions. However, the coefficients of the interaction of vertical spillover effect and local business ties in bothregions are positive but not significant, showing that there are no direct effects of vertical

spillover effect and local business ties on innovation performance in the both regions.

Model 2 and model 5 show the effects of government ties and FDI spillover effects (horizontal spillover effect and vertical spillover effect separately) on a local firm's innovation performance in Pearl River Delta region and Chaoshan region. As shown in model 2, the coefficient of the interaction of both FDI spillover effects and government ties are positive and significant separately ($r1=0.259$, $p<0.01$; $r2=0.181$, $p<0.05$), indicating that the effects of FDI spillover effects on innovation performance are dependent on a local firm's government ties in Pearl River Delta region. Whereas the coefficient of the interaction of both spillover effects and government ties are positive but not significant, showing that there are no direct effect of FDI spillover effects and government ties on innovation performance in the Chaoshan region.

Model 3 and model 6 show the effects of universities ties and FDI spillover effects (horizontal spillover effect and vertical spillover effect separately) on a local firm's innovation performance in Pearl River Delta region and Chaoshan region. The coefficients of the interaction of horizontal spillover effect and university ties in both regions are positive but not significant, indicating there are no direct effect of

horizontal spillover effect and universities ties on innovation performance in the both regions. Accounting for the interaction of vertical spillover effect and universities ties, the coefficients in Pearl River Delta region is positive and significant ($r=0.186$, $p<0.05$), indicating that the effects of vertical spillover effect on innovation performance is dependent on a local firm's universities ties in Pearl River Delta region. Whereas the coefficients of the interaction of vertical spillover effect and university ties in Chaoshan region is positive but not significant.

Based on the above analysis in Pearl River Delta region and Chaoshan region, it is found that local cooperative ties play positive moderating role in Pearl River Delta region between horizontal spillover effect and innovation, both FDI spillover effects and innovation, and vertical spillover effect and innovation; whereas in Chaoshan region only local business ties have a moderating effect on the horizontal spillover effect and local firms' innovation. This finding has a root in the differences of investment environments and business cultures between Pearl River Delta region and Chaoshan region. Firstly, the economy in Pearl River Delta region is stronger than that in Chaoshan region. This, in turn, promotes widely local cooperative ties for local firms in Pearl River Delta region. Secondly, the composition of foreign-invested enterprises in Pearl River Delta region is more diverse than that in Chaoshan region. This favours the opening investment environment, which make it easier to attract other foreign-invest enterprises to

settle down in industrial clusters. Thirdly, the closer business ties among Chaoshan firms are the key to sustain and enhance their development. This is originated from cultural beliefs in the Teochew communities. Teochew cultural beliefs have the characteristic of strong clan culture, Confucian values and collectivism; thus, Teochew people tend to collaborate in business.

Discussion

The issue of FDI spillover effects, local cooperative ties and local enterprises' innovation has attracted more and more attention, and previous studies found various results. Recent studies show that the impacts of FDI spillover effects may be indirect as leveraged by absorptive capability (Long et at., 2014; Dana et al., 2015). In this study, considering the roles of local cooperative ties as the knowledge absorption and integration capabilities, we examine the moderating roles of the three ties in a China context. The results of empirical analysis partially support the hypotheses.

FDI spillover effects and innovation

This study strongly supports the positive effects of two different spillover effects on innovation performance. By cooperation or competition with foreign invested companies, local enterprises go on well and get information. As a result, it dramatically increases the amount and the level of new knowledge exchanged

among them. These findings are consistent with the conclusions drawn by previous studies (Li et al., 2001; Qi and Li, 2008; Park, 2014).

The role of local cooperative ties

Overall, this study contributes to the literatures on social capital and organizational learning by examine the moderating effect of the three local cooperative ties in local enterprises' innovative action. Consistent with previous research and with the second hypothesis of the study, local cooperative ties have significant effects on innovation performance (Gao, 2008; Conle and Taube, 2010; Cai et al., 2014). Knowledge absorptive capability is considered as a necessary condition for adding business value from applications of external resources and innovation, but there are few R&D departments in local SMEs and it is difficult to measure knowledge absorptive capability. Furthermore, this study proposes that the local cooperative ties act as the role of absorptive capability and examine the roles of local ties on the relationship between FDI spillover effects and innovation performance. However, studies rarely simultaneously distinguish and examine roles of different external resources in industrial clusters close to FDI enterprises.

Comparison of Pearl River Delta region and Chaoshan region

In the two selected regions, Chaoshan region is one with a Hongkong-Macau-Taiwan invested environment whereas Pearl River Delta region is with a mixed environment. We conducted a comparative study about the relationships among

local cooperative ties, FDI spillover effects and innovation performance in these two different locations. In our study, the results indicated that local business ties play an important role in the process of innovation in both regions. That is because local firms are usually linked closely to their business partners, and search cooperation among them after obtaining information from FDI spillover, especially in Chaoshan region. We found that government ties have a moderating effect on the relationship between FDI spillover and innovation performance only in the Pearl River Delta region but not in the Chaoshan region. This may be due to the impacts of clan culture and their cultural beliefs of the Teochew community, since in Chaoshan most foreign invested companies were founded by the overseas Chinese who were Teochew people or their descents. With regards to universities ties, it is found that the hypothesis only supports in the Pearl River Delta region. This may have a historical root in the industry structure and the geographical layout of universities in China.

Conclusion

In this paper, the role of local cooperative ties is investigated between FDI spillover effects and local firms' innovation. Two conclusions are drawn from the regression analysis. Firstly, local cooperative ties play a partial moderating role between FDI spillover effects and innovation performance. The close ties of local cooperation improve local firms' absorptive capability, which further enhances the conversion

of FDI spillover effects into innovation performance. In details, the moderating effect of local cooperative ties is partially validated. Local business ties play no moderating role between vertical spillover effects and innovation performances. Universities ties have no direct effects on FDI spillover effects and innovation performances.

Secondly, the moderating effects of local cooperative ties are examined to work in different ways between Pearl River Delta region and Chaoshan region. It is found that local cooperative ties play positive moderating role in Pearl River Delta region between horizontal spillover effect and innovation, both FDI spillover effects and innovation, and vertical spillover effect and innovation, whereas in Chaoshan region only the local business ties have a moderating effect on the horizontal spillover effect and local firms' innovation. This finding suggests the differences of investment environments and business cultures in Pearl River Delta region and Chaoshan region.

However, this paper mainly focuses on the role of three local cooperative ties, regardless of other local cooperative ties such as financial institution, industry association, that have the potential effects on moderating the FDI spillover effects and innovation relationship. To elicit further insights, however, other behavioural variables could be incorporated, and better comprehensive variables should be

designed to measure knowledge absorption and integration capabilities. In addition, we only conducted a survey in Guangdong province in South China, where most of the local firms are small and medium enterprises (SMEs). Therefore, the extent to which the findings of this study may be generalized or relevant, even for firms in East China or other emerging economies, remains to be discussed. Nonetheless, such limitations should be considered as signalling opportunities, rather than forming barriers, for future studies.

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Restaurant Waste Management in Dhaka City: current measures and the way forward

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ABSTRACT

Introduction: This paper aims to identify the sources of waste generated in the restaurants of Dhaka city and therefore, investigates a representative sample of restaurants to find out the statistics, current measures, awareness of the problem among the restaurateurs and the consumers, as well as the obstacles to achieve zero waste.

Design/Methodology: A mixed method research has been used for the investigation. The study used 56 restaurants from the most popular locations of Dhaka city as the research population. The data has been collected through the questionnaire survey, observation and discussions with restaurant staff members.

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Findings: The results of the study suggest that roughly one-third of food waste occurred in the customer plates. The other sources responsible for wastage are improper food storage, unplanned ordering of raw materials, waste occurring in preparation stage, and portion size. Restaurants can control food waste in their kitchens by effective management but, food waste minimization by the guests particularly at buffets is a challenge.

Research Limitation: The data collected could be significantly different based on the time of the year the survey is undertaken. It is also possible that the restaurant staff might not have been completely honest fearing negative consequences.
Practical implications: Bangladesh is a low middle-income country with significant proportions of people still living under the poverty line. Though starvation is not as common as in other developing nations of the world, there is no option for wasting food, especially avoidable food waste.

Originality/Value: Though some research has looked into solid waste management in different cities, no research yet has investigated sources of food waste in restaurants of Dhaka city.

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1. Introduction

1.1 Origin of the Study

With the continuous growth of the hospitality industry and increasing social trend of eating out at restaurants, prevention of avoidable food waste has become an important financial and environmental concern among the researchers, politicians, governments and the media. Variety of sources have highlighted the amount of usable food businesses in the industry thrown away (Gustavasson et al, 2011, Chalribois & Hughes, 2015). Across the world one-third of all the food produced is wasted which amounts to a staggering 1.3 billion tons or $400 billion annually (Nixon, 2015). The environmental impact of this wastage is equally damaging. Food production which requires consumption of the natural resources and 92% of the global water footprint is related to agriculture (Gerbens-Leenes, Mekonnen & Hoekstra, 2013) that also accounts for 20% of global greenhouse gas emissions (Hertwitch & Peters, 2009). Further environmental impacts of food wastage include carbon emissions from the collection and transportation of waste; the impacts from food waste in landfill; and this avoidable wastage means people need to grow more in the first place leading to use of more land, more energy and more inputs leading to a vicious cycle.

As the hospitality sector and restaurant industry have further potential of growth in Bangladesh and elsewhere, it is necessary to take urgent measures to reduce food waste for the benefit of the planet, society and a restaurants' bottom line.
While comprehensive information is available about global food waste patterns, very little data is available at present that reflects the food waste patterns of restaurants in Bangladesh. More than 30,000 tons of solid waste are generated every day in urban areas of the country (Rahman, 2019). According to an estimate by JICA restaurant waste in Dhaka city is the second biggest source of solid waste amongst business sources amounting to 34 ton/per day (JICA, 2005). Though informative, it is too broad to demonstrate where the balance of food waste is among customer plate, spoilage and preparation waste and determine the real causes and cures of this waste. Hence, in this paper an initiative has been taken to conduct a Restaurant Food Waste Survey, designed to take a closer look at food waste in restaurants and in particular the sources of food waste over their operations, separated into three streams: customer plate waste; preparation stage waste and spoilage.

Through in-depth interviews with 56 restaurants located in Dhaka city, this study tries to provide an insight into the sources of food waste to help restaurants and the other concerned authorities to come up with strategies and policies to reduce their food waste, from the preparation stage (ordering and menu planning by the kitchen

staff) through to the consumer end (such as customer plate waste due to over-portioning or other factors).

Restaurant members that took part in the survey have already commented on the impact the results have had on their food waste output and their commitment to doing more about it. With ongoing support and suggested actions, they can continue to reduce food waste and, in the process, cut costs to the environment and reduce waste overheads.

1.2 Objectives of the Study

With nearly 900 million people around the world eating barely enough to stay alive, hunger is, by far, the biggest killer in this world. In such a scenario, an effort has been taken to look at the other side of the picture -wastage. In particular restaurants food waste as there is hardly any research in this sector in the existing literature. The specific objectives for the research are as follows:

a) To know about the existing environmental awareness level among restaurant business in the country.

b) To know what they exactly do with leftovers. Do they throw these away, feed the poor or simply reuse the leftovers the next day? Now is a time when every business has the responsibility to go green and to be

sustainable, what is the status of the restaurants of Dhaka on this matter which also gives the main base of this report.

c) To undertake a quantitative survey among 56 restaurants across Dhaka city in order to investigate the quantity and types of food waste produced. These restaurants were chosen to represent a broad spectrum of restaurants in the city in order to collectively represent an 'Average Restaurant'.

d) To identify the major source of waste in terms of food, how much food waste comes back from customers' plates, how much is generated during preparation and how much comes from out-of-date or otherwise unusable items and to assess the potentiality of running a zero-waste restaurant in Dhaka.

e) Also, to get a picture about whether there is any restaurant that consciously plays even a small step to reduce environmental waste, a more generalized view other than food waste.

f) An important objective was to identify the possibility of implementing a Community food bank to mitigate food scarcity among poor with the help of the respective restaurants.

2. Literature Review

Foods thrown away are categorized as avoidable, possibly avoidable, and unavoidable. People have a choice to eat food or not to eat. Avoidable food is food and drinks thrown away that could still be eaten (Kelleher & Robins, 2013). Food losses and waste amount to roughly US$ 680 billion in industrialized countries and US$ 310 billion per year in developing countries (FAO, 2016). Approximately 821 million people that are still suffering hunger could be fed four times with the food wasted globally annually (FAO, 2018). The percentages of the edible parts of food waste or loss in each year is about 30-50 percent while produced and intended for human consumption globally (Gustavsson. et al, 2011; Institute of Mechanical Engineers, 2013). An international survey prepared by the Cornell Food and Brand Lab and the Getulio Vargas Foundation in 2015 indicates that the maximum causes of food waste in homes includes buying foods more than needed, making or cooking in plenty, reluctance to consume leftovers, and lack of food storage facilities (FAO, 2015). On the other hand, most of the restaurant waste comes from food preparation, spoilage and in customer plates (Wrap, 2013). Food waste at restaurant level occurs during the food preparation or consumption phase (Risju-Norja et al., 2010; Papargyropoulou et al., 2016). The reason behind this wastage is an incorrect food forecast and planning, and discarded food when it is cooked or processed or/and left on plates by clients (Principato, 2018; Marthinesen et al., 2012; Pirani and Arafat, 2016). According to a recent study,

client waste accounts for 34 percent of the total wastage in restaurants, which makes it one of the most significant drivers of food waste at this level (WRAP, 2013).

The effects of food waste are not only limited to economic and financial losses. From the stage of food production to its consumption, use of various resources are involved, having direct effects in climate change, water and soil pollution, scarcity of water and loss in terms of biodiversity and habitats (Reisch et al., 2013). Waste foods end up in landfills, contributing to pollution and global warming and resources and energy used to grow and manufacture the food also contributes significantly to our carbon footprint (Reisch et al., 2013). From an sustainable environmental aspect, food waste leads to a chemical usage such as fertilizers and pesticides, more fuel gets used for food transportation, and the more food corrode in landfills creating more methane gas; which is considered one of the most harmful greenhouse gases that contributes to global warming and climate change (Pantig, 2014, Paremswari, 2017).

Most of the food processing companies that are involved in production of consumer goods are aware of food wastage and they are trying to reduce these types of food waste by taking and implementing different sustainable steps to create and spread awareness among the consumers (The consumer goods forum,

2015). According to the Chairman of Metro AG Olaf Koch, as food is a scarce and therefore extremely valuable resource wasting it is an economic, social and ecological burden therefore, creating solutions to reduce food waste is an opportunity to generate value - for business, customers and society alike (The consumer goods forum, 2015).

In light of the above discussion it is needless to say urgent measures need to be taken to reduce food wastage. It can be viewed as a "triple win" solution- it can save money for individuals, companies and smallholdings, it can mitigate hunger for the starved, it can save land, water and ultimately reduce climate change impacts (Secondi, Principato, and Mattia, 2019) which is why, in 2015, the United Nations decided to include food waste issues in its target. The 12th target of the SDGs is to "Ensure waste at retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses by 2030 (SDG 12.3; UNDP, 2016). Sustainable development focuses on triple bottom line – people, planet and profit (Öktem et al., 2020). Considering the environmental impacts related to food waste, it is clear that reducing it could greatly improve the sustainability of our planet (Heikkia et al., 2016). The way to save the future is green energy, sustainability and renewable energy which means zero waste of energy. "Zero waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable

natural cycles, where all discarded materials are designed to become resources for others to use" (Zero Waste International Alliance, 2009). In the 21st century zero waste should be the direction forward over even recycling or reusing. Although for countries like Bangladesh implementing sustainable measures are expensive and time consuming, it is the call of the time. The case for change towards zero waste is compelling as we will save billions of pounds as well as prevent millions of tons of greenhouse gases from entering our atmosphere and crucially, we will ensure that food is treated as a precious resource (Finney, 2013). Paul Hawken, a renowned environmentalist and entrepreneur reinforces the importance of conservation by stating "The future belongs to those who understand that doing more with less is compassionate, prosperous, and enduring, and thus more intelligent, even competitive." (Stubbs, 2019).

2.1 Formation of Research Questions

From preliminary analysis of primary and secondary data, following research questions have been formulated for the project:

SRQ1: How would you describe the level of food preparation?

The issues that have been identified and considered for the analysis are as below:

1) Do the restaurants serve readymade food?
2) Do they sell food prepared from scratch after receiving order?

3) Is the food they serve partially prepared beforehand?
4) Do the restaurants have lack of awareness about food hygiene?
5) How is the quality of food they serve to the consumer?

SRQ2: Where do you think the food in your restaurant gets wasted the most? (Rank from 1 to 5, 1 being the highest waste)

The below factors have been selected and studied:

1) To know the causes of food wastage.
2) To know how much concern the restaurateurs have on the food loss or waste.
3) The main reason of maximum waste created from the foods.
4) The amount of food spoiled while storing.
5) How much responsible are the customers for leftovers.
6) The ingredients, size of piece of foods they use

SRQ3: Does your restaurant have any green initiatives to consciously reduce environmental pollution? You can tick more than one answer and also please explain a little.

The factors that have been selected and further analyzed are:

1) The scope of biodegradable cups used in restaurant.
2) Awareness of saving energy, electricity, sunlight and the natural environment.
3) The possibility of recycling water, bottle, and cups they use in their service
4) To know about the overall familiarity about the green initiatives.

2.2 Data Collection and Methodology

2.2.1 Primary Data Collection:

For the purpose of the research, a primary survey was carried out on 56 restaurant owners in different locations of Dhaka city. Four major areas in Dhaka city were selected as sample locations as most of the restaurant hubs are situated there. Across the 56 participating restaurants, the seating capacity ranged from 35 to 124 seats and staff numbers ranged from 10 to 46, including both kitchen and front-of-house staff. The goal was to aim for a variety of restaurant types to generate results as close to an 'average' restaurant as possible. It was decided that conducting the Restaurant Food Waste Survey during midweek for one day was a better option than a Friday, Saturday or Sunday. This ensured that the restaurants would not be at their busiest and therefore would have the time to separate and weigh the food waste on their less-busy days and would also consistently capture customer patterns of a working day lunch and dinner.

2.2.2 Methodology:

A mixed method research (combination of quantitative data and qualitative information) has been undertaken for this paper. For data collection, questionnaires were prepared containing 12 questions each. The questionnaire included three different types of questions. Questions with fixed alternative answers to choose from, close ended questions and few questions with open ended answers. Data has been analyzed through statistical software SPSS and partly through MS excel. Based on the data collected the findings have also been examined qualitatively through discussions. The correlations of different variables have been shown in SPSS and an analysis based on the results of correlations from the annex table is presented as well.

3. Analysis and Findings

The survey has been conducted in order to identify and analyze three major areas of the restaurant waste in Dhaka city: -

- What are the major sources of waste in a restaurant?
- Awareness and activation level on zero waste and its environmental impact.
- Prospect of adopting any zero-waste strategy in order to reduce and or avoid waste.

In the following section, the detail findings of the survey and their analysis are given.

3.1 Awareness on the food waste issue

It was found during the survey that 64% restaurant staff are aware of the fact that food waste has serious environmental consequences. On the other hand, 26% have little idea about it and 11% are totally unaware. To achieve zero waste the awareness of the staff members needs to be increased.

3.2 Source of most food wastage

This question points out the sources where most wastage of food comes from in restaurants. It was found that most wastage takes place in the customer plate with a rate of 56%. Second largest source of wastage occurs in the food storing stage at 14% and then 13% wastage occurs in the preparation stage. Over ordering of supplies causes 13% and food portion size is responsible for 4% of total waste as shown in following diagram.

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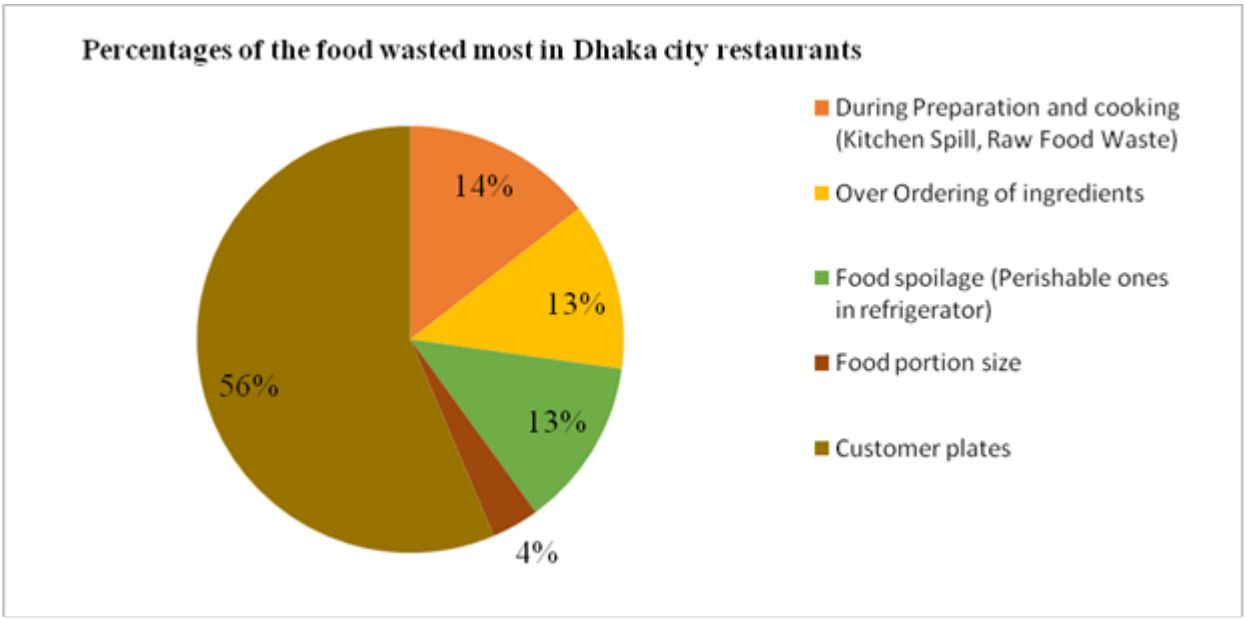

Figure 01: Sources of getting food wasted most (Calculation based on the survey)

3.3 Uses of unsold food

Restaurants take different measures to deal with unsold food. It was found that 36.8% restaurants give it away to employees, 25.3% restaurants throw it away, 21.7% keep it to sell in the next day, 10.9% give it to poor and other 5.4% use it to make alternate menu.

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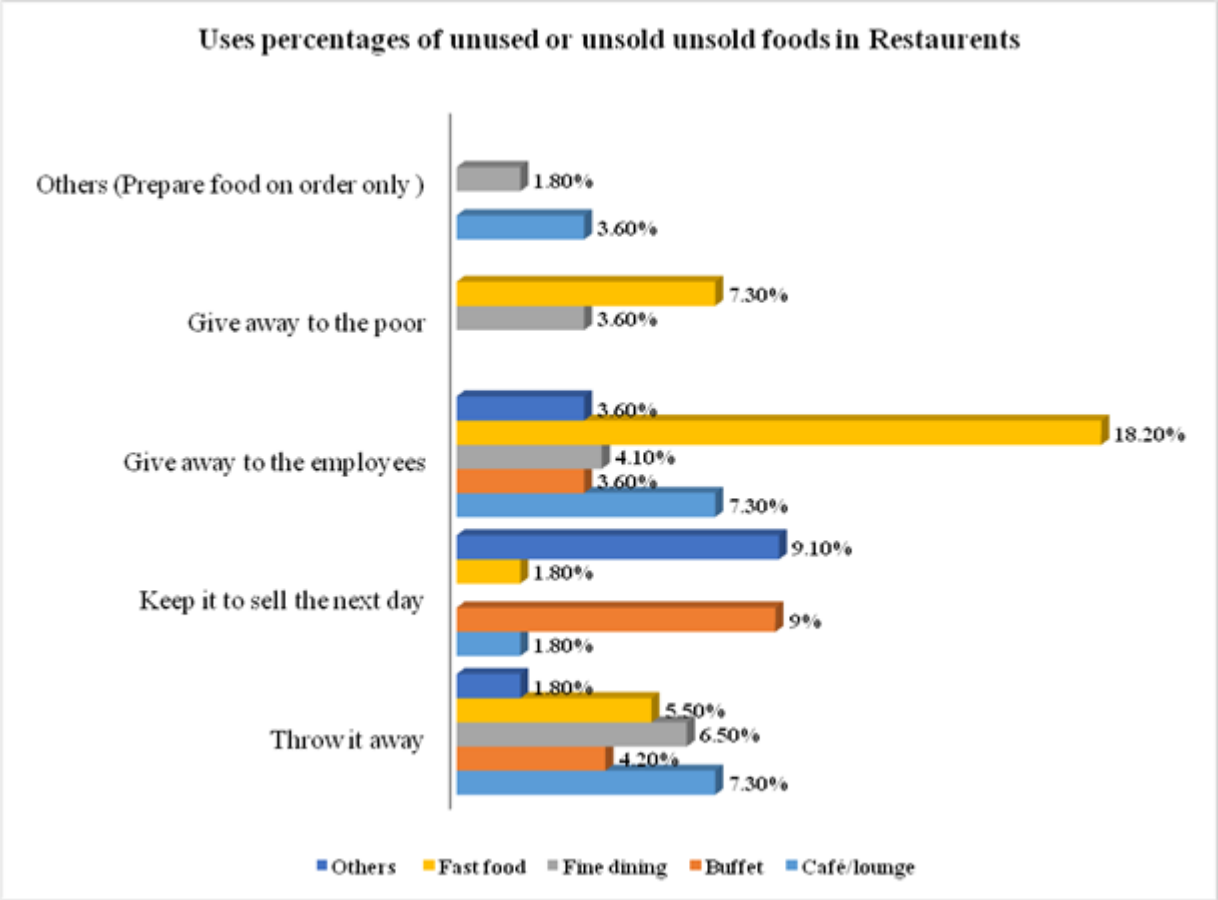

Figure 02: Share of usage of unused or unsold foods available in Restaurant (Calculation based on the survey done by group members)

The most promising findings of this analysis are that:

- Café or lounge types restaurants are the ones that mostly throw away unsold or left-over food.
- Most of the buffet restaurants keep leftover food and sell it in the next day.

- Café/lounge and fast food restaurants have mixed results on the preference to sell it the next day.

The underlying causes for doing so could not be identified due to time limitation and little cooperation from the restaurants.

3.4 Existing food waste prevention strategy

The data collected from question 4 shows interesting results for the existing strategy for the food loss prevention by the restaurants. It is evident that comparatively old restaurants who are in operations for five years and above have few food prevention strategies whereas restaurants new in operations are hardly interested to implement any new process to prevent food loss.

3.5 Activity to reduce food waste in future

According to the survey restaurants undertake different kinds of activities to reduce and prevent food wastage. It was found that 38.2% reduce portion of the food, 30.9% buy perishable foods in less quantity and 31% recreate new menu from the leftovers.

3.6 Existing waste management

During the survey it has been found that most of the respondents used a separate bin for the waste and only a moderate number of restaurants did not use any separate waste bin. The details have been asked through open-ended questions. The restaurants in Dhaka city usually separate the waste in two types. One is wet waste and another is dry waste. They dump the wet waste usually in a green bin and the dry waste such as plastics and cups in black or blue bins.

3.7 Participation in food drive service

Some of the restaurants show willingness to donate leftover food to the needy people in their communities. The results correspond with the awareness of the food loss. The findings show that more than 45% restaurants are willing to donate leftover food among the needy people. Those who deny to donate are the restaurants who have no idea or little idea about the food loss impact on the environment as shown in the following diagram.

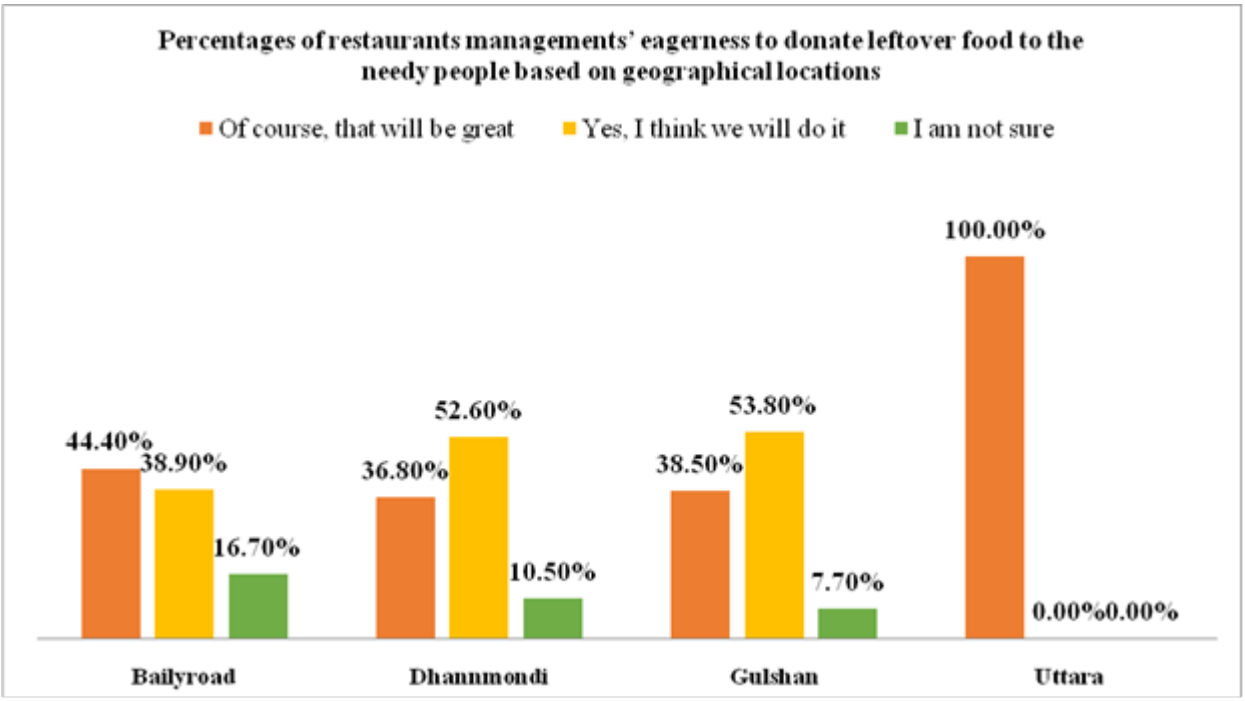

Figure 03: Restaurants authority in different areas willing to donate leftover food to the needy people (Calculation based on the survey)

As most restaurants are driven to make better use of leftover food, this opportunity should be taken to redistribute food and reduce wastage.

3.8 Existing Waste Reduction Initiatives

It was optimistic to see that some restaurants have undertaken intentional green initiatives in order to reduce waste of water, electricity and plastics. 32.7% of the

restaurants give emphasis on using less electricity on excessive decorations, 21.8% say they use biodegradable cups, 18.2% say that they try to reduce water usage and 4% recycle the old bottle and jars. Unfortunately, 20% of the restaurants do not have any pro-environment measures towards waste reduction.

The survey also identified through the open-ended questions that some restaurants feel the need for green initiatives but they perceive it as a costly approach. They find monitoring waste is costly but this mentality needs to be changed. It shows that they have limited ideas on waste management and sustainable use of resources.

4. Discussion

Restaurants waste is the second largest sources of solid waste in Bangladesh. Dhaka city has the highest number of restaurants in the country therefore, a clearer picture of the food waste sources from restaurants can help formulate effective strategies and policies to prevent wastage and achieve zero waste. The findings from the survey are presented above however, further discussion and analysis of the study help reveal more insight into restaurant waste management. As the data suggest that most of the restaurant staff are aware of the environmental impact and have a sense that these wastes can make environment unhealthy and spread odd smell if not disposed properly. They also seem to believe that waste management is a part of corporate social responsibility. Waste management will definitely be

easier if the staff members are further informed about the negative impacts of food waste. This can be conducted through campaigns and activities for green restaurants. Also, more attention needs to be given to build awareness among the customers as 56% of food is wasted on customer plates. In depth questioning and discussion reveals that customers waste food due to customer food habit, careless attitude or lack of awareness about the impacts of wastage. Food waste at restaurant back houses occur due to inefficient storage caused by lack of proper equipment, over-supplies of raw materials as often restaurants do not follow any systematic approach to predict how much is needed, and also sometimes buffet system in restaurants cause food waste. Often customers end up taking more food on their plates to get the worth of their money regardless of the fact that they might not be able to finish it.

Further analysis of the survey data shows that new restaurants are more welcoming and aware of the green operations than restaurants that have been in business for a long time. This could be due to the fact that the restaurants that have been in business for five years or more feel too confident to take any costly initiatives for waste management. Though majority of restaurants have suggested that they adopted one or other types of green initiatives, these are very small scale. There is no effective uniform strategy so that the restaurants can co-ordinate their activities to create a meaningful impact on the environment or on their bottom line. New

policy is needed to help reduce food waste both by the management and the customers. However, restaurants are willing to take initiatives in future in order to reduce food waste in their respective restaurants.

During the survey it has been found that most of the respondents used a separate bin for waste disposal and only a moderate number of restaurants did not use any separate waste bin. It is concerning even if the minority restaurants did not use separate bins as this is unhygienic and unhealthy.

Leftover food by restaurants is a big part of food waste. As shown in section 3.5, the details have been asked through open-ended questions and data show that majority of the restaurants agree to participate in initiatives to help start community food bank. Restaurants have been linked with specific areas in this this section in order to identify whether a sample area can be taken to implement the food bank strategy.

Finally, restaurant owners tend to believe that sustainable waste management is expensive. This is of course a concern as the benefits of implementing green production processes and sustainable management can be effective in long term only. To consider sustainability, profitability should be considered first and then the economic risks required to make it sustainable can be considered accordingly (Zahan & Alam, 2020). Therefore, incentives should come from both the public

and private sectors for restaurants to incorporate sustainability and zero waste as strategy and goal.

5. Limitations

The Restaurant Food Waste Survey was intended to provide a snapshot overview of food waste in a small sample of restaurants so all results in this report should be viewed as a guide to the likely numbers involved and the general principles under consideration. Limitations in qualitative research encompass weaknesses that potentially affect the outcome of the study (Brutus et al., 2013). The data from this survey will likely be different to the data received if the survey was done at another time of the year for example during any religious or cultural festivals.

The food waste measured on only a single day is likely to be different in volume, weight and type to the food waste produced on the next day – this data has been extrapolated to reflect the food waste from 365 days of the year; so this must be seen as a general indicative figure. These calculations are based on the assumption that the participating restaurants operate 365 days of the year and are open for breakfast, lunch and dinner service seven days a week.

Some participating restaurants may be already doing more to reduce their food waste than others and customer plate waste cannot be measured as accurately for any restaurants that operate home delivery or offer take away services. Larger

restaurants may cater for banquets or large parties on top of their usual ala carte diners. However, as these and other anomalies also exist across the restaurant industry this snapshot survey comes as close as possible to providing an acceptable overview of food waste in restaurants in general.

The survey team and the respective representative of the restaurants together filled up the survey papers. The representatives did not provide enough time to discuss the survey as they kept very busy all time to serve the foods. Many of them did not cooperate and some of them did not say anything as they thought it was harmful to them. However, every effort was made by the team and the staff from participating restaurants to follow the survey procedure as precisely as possible. If there was more time and resource the survey could have been more thorough and the sample size could have been made bigger to get a clearer picture.

6. Recommendations

In Bangladesh the concept of zero waste is new, though many countries are already doing it successfully. However, the following recommendations are based on the scenario that has been found during the survey and which restaurants can implement with their existing resources with a little effort. Since restaurateurs in Bangladesh are still very new to the concept of food waste management, the recommendations provided below can be implemented in phases starting from

awareness building to rigorous methods targeting zero waste. Few recommendations that will help minimize or lead to possible zero waste in restaurants are discussed below:

6.1 Staff Training: Staff training is of utmost priority as restaurants in Bangladesh are still very unfamiliar to the concept of zero waste or sustainability. If the staff members are aware of the economic and environmental impact of food wastage, they will be more proactive to reduce and prevent food loss. Moreover, implementing waste reducing policies and procedures will be much easier with personnel who have the knowledge of the negative impact of food waste. Problems related to food wastage are exacerbated when staff are not trained on food safe practices (Rodrigues Salay, 2012).

6.2 Customer Awareness: During the questionnaire survey it has been found that most wastage comes from a customer's plate. Customer plate waste, at 56%, is significant, and there is substantial potential to reduce the wastage and reduce costs by building customer awareness. A number of measures can be taken by the restaurants and they are:

- Careful consideration of portion size, and offering varying portion sizes according to customer appetite would be a smart way to avoid unnecessary waste. Proposing different portion sizes according to client's needs and

helping them to understand their actual hunger level in order to avoid leftovers (WRAP, 2013; Riis, 2014).

- Menu planning to ensure the food will meet with customer expectation.

Simply encouraging guests to take only the food they can consume goes a long way in reducing wasted food. Restaurants can post informational signs at buffet-style food service venues that encourage customers to take only enough food to match their appetite.

6.3 Storage Techniques: Another reason for food waste in restaurants is their food storing techniques. Due to lack of space and knowledge many of the food items especially perishable items get wasted before even the preparation stage. To reduce this wastage restaurants can:

- Use order product list.
- Improve supply chain management where the restaurants work with the suppliers to improve quality of the produce (Charlebois, Creedy, & Massow, 2015).
- Monitor inventory level. Improving the accuracy of fresh food inventory forecast and storage conditions can help to deal with food wastage (WRAP, 2013).
- Ensure right and proper temperature for storing the items along with ensuring proper storage equipment.

6.4 Community Food Bank: The primary purpose of the Community Food Bank Service is to provide food for hungry people through the distribution of surplus food that would generally be discarded. In the survey it has been found out that many restaurants throw away foods which are not sold in a day. So, if those restaurants, especially in Dhanmondi and Uttara area can start this service with the help of organizations like e.g. JAAGO Foundation, many of the orphans and homeless poor people will get food and the impact of food wastage will reduce. It's a new concept in Bangladesh but if restaurants as well as the Non-Profit Organizations (NGOs) make an effort food waste will become a source of providing meals for the hungry. Many countries are already using digital platforms to better coordinate producers of surplus and the redistributors.

6.5 Restaurants Waste Audit: Another new concept in Bangladesh. But in many foreign countries restaurants successfully do it. Thus, if restaurants start to check what they are doing and what they should do it will give them a chance to assess their own actions. Waste audit will help to educate every member of the team about methods of monitoring, storage and recycling. It will also help restaurants to minimize unnecessary cost to a great extent.

6.6 Green Incentives Through Respective Policy Makers: In Bangladesh very few measures on restaurant waste has been taken on policy level. This has been a neglected area for a long time. However, there is a provision of green tax benefit if restaurants are able to reduce food wastage. Therefore, if the accountable ministry can make this benefit easily available for the restaurants surely many restaurants will be motivated to reduce the waste they make. Additionally, there needs to be policy guidelines directing restaurants on leftover and wasted food management. Zero waste and sustainability will be much easier to achieve if the government imposes some regulations.

6.7 The Fourth R: Though most of the people are familiar with the 3 R's of Reduce, Reuse, and Recycle; very few are familiar with the fourth R that is Responsibility, which holds the key to sustainability. People need individual responsibility, community responsibility, industrial responsibility, professional responsibility and political responsibility for creating the awareness of the wastage. If people individually are aware and think that it's our responsibility to protect the environment by eliminating food waste, then they will be more inclined to reduce avoidable food wastage.

6.8 Technology for Waste Management: Eventually we need to progress towards adopting technology to manage restaurant waste better. There are already many

existing examples set by countries like China and Italy. For example, Wen et. al. (2018) discusses a new technology based on Internet of Things (IoT) for managing Restaurant Food Waste (RFW). It is a sensor-based Internet of Things (IoT) network technology and it designs, implements and evaluates for improving the management of RFW in the city of Suzhou, China. They have experimented this as a case study and received mostly positive results. In Italy there is an award-winning practice called Rugusto that manages food surplus and out of home leftover through the adoption of a digital solution that can be used for both profit and non-profit sectors (Secondi, Principato & Mattia, 2019). Bangladesh should follow these examples in order to achieve zero waste going forward.

6. Conclusion

The initial assumption of this report was that most of the restaurants in Dhaka City are not aware of the environmental impact on food waste and there are very little initiatives on their parts to create a zero-waste restaurant. Further analysis of the information collected reveals that most of the restaurants have basic environmental awareness but it is very unfortunate that very few restaurants are actively taking any initiatives to play a major part to reduce it. Additionally, even if some of them are doing something pro environmental, those have minimal environmental effect in terms of waste reduction of any sort. If proper initiative can be taken to make them understand the financial benefit of saving the environment and enhancing

sustainability through it only then maybe a number of zero waste restaurants will be a reality in Bangladesh. However, it must be mentioned that Zero Waste should be set as a long-term goal. Awareness building among the restaurant personnel and customers and policy implementation and regulatory guidance by the concerned authorities should be aimed and achieved first.

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Measuring Chinese food consumers' preferences for sustainability attributes: The case of the Shanghai yogurt market

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Abstract

Sustainable development is becoming established as a central public policy tenant globally. This agenda explicitly promotes sustainable agriculture to embrace agricultural practices that maintain environmental quality, ensures safe food, and socially responsible production. Within the Chinese agri-foods context, challenges

to achieving agricultural sustainability are evident on several fronts including increases in projected food demand, rising budget shares for dairy and meat, and meeting increased domestic production targets. Water scarcity, pollution, and ecosystem degradation have become crucial constraints to China's economic development and increasing production while limiting environmental degradation is a major challenge.

Establishing sustainable agriculture in China will necessitate development of farming systems with lower environmental and social impacts with reduction in demand for pollution-intensive products potentially playing a role in incentivising system change. However, the role of consumer preferences for sustainability attributes in food choices is not sufficiently understood in China. This paper reports on the application of a discrete choice experiment survey designed to measure consumer preferences for sustainability attributes in the Shanghai yogurt market. Our results show that many consumers are willing to pay a premium for sustainability attributes that can play a role in ameliorating the environmental and societal pressures associated with agricultural intensification and production. This suggests that potential opportunities may exist for dairy companies to support developing the role of sustainability attributes in consumer choices as an avenue for product diversification that contributes to profitability as well as sustainability goals.

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1. Introduction

Sustainable development is becoming established as a central public policy tenant globally (United Nations 2015). This agenda explicitly promotes sustainable agriculture to embrace agricultural practices that maintain ecosystems and biodiversity, improves land and soil quality, as well as ensuring access to safe and nutritious food. This agenda also explicitly targets indicators of socially responsible production including fair and equitable resource use, as well as economic resilience to increase and maintain supply. Within the Chinese agri-foods context, challenges to achieving agricultural sustainability are evident on at least several fronts, resultant predominantly from bovine products such as meat and dairy that are among the most resource intensive and ecologically burdensome foods (Shimokawa 2015). First, significant increases in food demand are projected, driven by population and income growth, creating pressure for increased productivity for all agricultural products if the majority of China's future food demand is to be met by an increase in domestic production (Sheng and Song 2019). Second, budget shares for dairy are predicted to rise for both urban and rural households as consumption patterns change from cereals and grains to increased meat and dairy (Zheng et al. 2018). Third, there is an apparent tension between the

increased dairy consumption recommended by the Chinese Dietary Guidelines and minimisation of environmental and social impacts of dairy production (Leia and Shimokawa 2017). Water scarcity, pollution, and ecosystem degradation have become crucial constraints to China's socio-economic development (Bai et al. 2018) and therefore increasing production while limiting environmental degradation from overuse of agrochemicals and other inputs is a major challenge facing China (Lam et al. 2013). While domestic milk output has been increasing at an annual growth rate of 16% over the last decade, expansion of the dairy sector in China has led to serious environmental problems (Shefali and Zhang 2014) with water depletion now a serious concern (Huang et al. 2014). The rapid development of the dairy industry has resulted in the increase of the total wastewater discharge (Bai et al. 2018a). Accounting for approximately 50% of China's total wastewater, levels of wastewater pollution are primarily driven by the agricultural sector, and many of China's monitored waterbodies already exceed national standards (Wang et al. 2018).

Reflecting these pressures, establishing sustainable agriculture in China will necessitate development of farming systems with lower environmental and social impacts (Huang et al. 2014). Reduction in the demand for pollution-intensive products can potentially play an important role in incentivising system change (Wang et al. 2018). However, the role of consumer preferences for sustainability

attributes in their product choices is not well understood in China. Therefore, this paper is motivated by a need to assess consumer demand for sustainable production that could contribute to alleviating environmental and social pressures. The central objective of this paper is to contribute to understanding of sustainability attributes in product choice. To meet this objective, this paper reports on the application of a discrete choice experiment (DCE) survey designed to measure consumer willingness-to-pay (WTP) for sustainability attributes in the Shanghai yogurt market. We select yogurt as a case study product that has not previously been considered, and as consumption is one of the fastest growing dairy products (Hancock 2017). Between 2011 and 2016, the compound annual growth rate (CAGR) of yogurt products in China was 18.4 per cent, which was ranked second after cheese (20.8 per cent). Yogurt sales are also predicted to achieve a CAGR of 16 per cent between 2016 and 2021 (Euromonitor 2017) and demand for yogurt products is expected to achieve approximately a third share of the Chinese dairy market by 2021 (DBS 2017).

While sustainability in agri-food industries aims to consider environmental, social and economic outcomes in production, broader consumer preference research in China has focussed predominantly on food safety, giving scant attention to environmental and social outcomes. Likewise, studies specifically estimating Chinese consumers WTP for attributes of food products have concentrated

predominantly on food safety attributes, with an emphasis on pork (Wu et al. 2015; Zhang et al. 2012; Ortega et al. 2011) and milk (Yin et al. 2017; Xu et al. 2017; Bai et al. 2013; Ortega et al. 2012; Zhang et al. 2012; Wang et al. 2008). As Organic practices emphasise reduced agrichemical contamination and therefore enhanced food safety, it is perhaps unsurprising that studies of preferences for Organic attributes make up the next largest share of food consumer WTP studies applied in China, particularly for milk products (El Benni et al. 2019; Ding and Veeman 2019; Quan et al. 2018; Wu et al. 2014). Far fewer studies have explicitly estimated WTP for environmental and social responsibility attributes. Considering social responsibility attributes, Yang et al. (2013) estimate WTP for Fairtrade coffee, and Ortega et al. (2015) estimate WTP for animal welfare of chickens and pigs. Studies of preferences for environmental sustainability are similarly scant with estimates of WTP estimated for rice (Liu et al. 2017), pork (Lai et al. 2018) and seafood (Xu et al. 2012). The only known available study of WTP for environmental sustainability of milk is provided by Gao et al. (2016). These authors apply a Contingent Valuation method that is limited by an inability to estimate preferences simultaneously for other important sustainability attributes such as safety, animal welfare and social responsibility. Moreover, the majority of consumer WTP studies in China frame consumer choices on single attributes or a narrow set that may obscure important relative preferences. This papers central contribution to agricultural sustainability research is to provide estimates of

consumer WTP for environmental sustainability relative to other important sustainability attributes of social responsibility, animal welfare, and food safety in China.

2. Materials and methods

2.1 Discrete Choice Experiment

This study employs the survey-based method of DCE to estimate Shanghai yogurt consumers' WTP for sustainability attributes of yogurt production. This valuation approach is appropriate, as most of the elements of sustainability are currently not directly observable to consumer's in-market. Consumers are therefore unable to express their WTP for these attributes in a way that generates observable market data that could reveal preferences. The DCE method involves simulating the context in which consumers would normally make choices among a set of competing yogurt alternatives. This is achieved by designing an experiment in which yogurt attributes are systematically and independently varied to produce multiple choice scenarios from which respondents choose their preferred yogurt option. In this study, alternative yogurts presented to consumers are described by the type of yogurt, management practices of production, country-of-origin and price.

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Choice experiments are based in Random Utility Theory (McFadden 1974) in which a respondent's utility is decomposed into an observable deterministic part and an unobserved random component; and Lancaster's characteristics theory of value in which a good can be decomposed into its component attributes (Lancaster 1966). To analyse respondent choices we specify a Mixed Logit Error Components model (MLEC) (Train 2009). The error component specification is chosen to accommodate correlation between the different yogurt alternatives versus the "none of these" option in each choice set. We specify sustainability attribute parameters to randomly vary according to a normal distribution across respondents but remain constant across choices for the same respondent (Revelt and Train 1998). To accommodate behavioural plausible heterogeneity in preferences towards the price attribute, while ensuring meaningful WTP estimates, the cost parameter is specified as a constrained triangular distribution with mean equal to standard deviation (Hensher et al. 2015; Bliemer and Rose 2013). Simulated unconditional estimates of WTP for attribute *j* by consumer *i* are calculated as the ratio of the estimated model parameters accommodating the influence of the random component (Cicia et al. 2013) as:

$$WTP_i^j = -\left(\frac{\beta_j + \varepsilon_{ij}}{\beta_{price} + \varepsilon_{ip}}\right) \qquad (1)$$

2.2 Survey development and administration

Selection of attributes to include in the DCE started with a review of yogurt products available in the Chinese retail market. This established the variety of yogurt types and associated prices facing consumers. This was accompanied by in-depth literature review concentrating on dairy consumer preference studies to identify attributes recognised as drivers of consumer choice. Findings of these phases were scrutinised in discussions with scientific experts to develop a scoping survey conducted in December 2017. The sampling strategy involved recruiting 200 Shanghai yogurt consumers who had purchased yogurt at least once in the previous month. A central purpose of the scoping survey was to assess respondent understanding and importance of yogurt attributes, with careful attention to evaluate sustainability attributes identified. Importantly, responses were used to refine attribute descriptions used in the DCE to ensure clarity of attribute comprehension by respondents. Finally, draft surveys were iteratively pre-tested for attribute saliency and understanding. Food safety, animal welfare, organic production, environmental performance, social responsibility, yogurt variety, country-of-origin, and price per kg were chosen as the attributes to be assessed in the choice experiment (Table 1). We include an enhanced food safety attribute as safety is recognised as the most important food attribute in Chinese food choice preferences. Organics is included as, while still a relatively small and emerging area of production in China, recent demand growth has seen a growing body of

consumer research. An enhanced animal welfare attribute is included as an important element of sustainability that is an emerging issue in sustainability preference research. Likewise, we include a social responsibility attribute as an important factor of social sustainability. Social responsibility in agricultural production can be described in many ways, however a central characterization typically reflects practices that recognise the impact of decisions on communities (Miller et al. 2017). Consistent with this view we specify a social responsibility attribute defined in terms of collective ownership and active inclusion of public interest into decision making. We construct an environmental sustainability attribute that specifies use of a management system that minimises environmental effects of production and distribution. Finally, country-of-origin, yogurt variety and associated prices were determined as relevant observable in-market decision attributes. The countries and yogurt types selected are chosen as the highest frequencies found in scoping survey results. Likewise, the price vector is derived from scoping survey responses to usual purchase prices reported.

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Table 1 Yogurt attribute descriptions and levels used in the choice experiment

Attribute Label	Attribute Description	Attribute Levels
Strengthened food safety	The yogurt has been officially certified by a Food Safety Agency who guarantees that the production of this yogurt employs a management system that provides food safety additional to minimum regulatory requirements.	No label, Certified
Enhanced animal welfare	The yogurt has been officially certified by an Animal Welfare Agency who guarantees that the production of this yogurt employs a management system that that provides animal welfare additional to minimum regulatory requirements.	No label, Certified
Organic	The yogurt is 100% organically produced, is GE free, with no synthetic fertilisers or pesticides used.	No label, Certified
Environmental sustainability	The yogurt has been officially certified by an Environmental Agency who guarantees that the production of this yogurt employs a management system that minimises environmental effects of production and distribution.	No label, Certified
Social responsibility	The yogurt has been produced by dairy farms that are community owned and operated. Socially responsible producers and suppliers actively include public interest into decision making.	No label, community ownership and management
Type	The type of yogurt	Drinking, spoonable, or powdered
Country of origin	This attribute displays the country where the yogurt is produced	No label, New Zealand, China, Germany, Spain, Thailand
Price	Yuan per kg of yogurt (2017)	20, 30, 40,50, 60, 100, 150, 200, 250

An experimental design was constructed based on three yogurt product alternatives employing a D-efficient fractional factorial approach using NGene™ (ChoiceMetrics 2014) and included the ability of respondents to opt-out of making a choice ("None of these") (Fig.1). For the initial experimental design, we looked at similar studies for design parameters, then updated these with coefficient estimates from a model fitted to pilot survey data (n=200). The resulting updated

experimental design was applied to the remaining number of respondents. The full design consisted of 30 profiles and was blocked into three, with each respondent randomly assigned to a block of ten choice sets. The order of choice sets was randomised across respondents and choice set alternatives were randomly ordered left-to-right. A cheap-talk script reminded respondents of hypothetical bias and to answer the hypothetical valuation questions as if they were a real and binding purchase (Mahieu et al. 2012). To improve reliability, surveys were targeted at household members who purchase yogurt at least monthly. A sample of Shanghai yogurt consumers was obtained from Research Now™ (researchnow.com) an international consumer research consultancy that maintains one of the largest global databases of consumers. Surveys were implemented online in December 2017 using Qualtrics™ survey software (www.qualtrics.com). The use of an online survey mode has been found to be superior to a traditional paper-and-pencil mode for identifying product attribute preferences when using DCE (Sethuraman et al. 2005).

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In the next set of questions, imagine you are buying yogurt from your usual retailer for personal consumption. Which of the following yogurts do you prefer?

	Yogurt 1	Yogurt 2	Yogurt 3	
Type	Drinking	Spoonable	Powdered	
Strengthened food safety	Certified		Certified	
Enhanced animal welfare		Certified		None of these
Organic	Certified			
Environmental sustainability		Certified	Certified	
Social responsibility			Certified	
Country of origin	Thailand	New Zealand	Germany	
Price	30 yuan/kg	30 yuan/kg	200 yuan/kg	
I choose	○	○	○	○

Fig. 1 Example choice set

3. Results and discussion

3.1 Sample characteristics

The survey process achieved a sample size of 837 usable responses. Descriptive statistics for the sample (Table 2) reveals slightly more female respondents (53%), that 25-34 year olds are the largest age group (57%), most respondents lived as a couple in households with children (70%), about three quarters of respondents hold a University degree (77%), and almost half earn ¥150,000 or more annually (45%). Importantly, the sample is not intended to be representative of Shanghai's overall

population but rather the relevant population that we draw inference on are yogurt consumers who purchase at least monthly.

Table 2 Socio-demographics of survey respondents

Variable		Percent of sample
Gender	Male	47
Age	21-24	12
	25-34	57
	35-44	24
	45-54	5
	55-64	2
	65 or older	0
Location	Urban	97
	Suburban	2
	Rural	0
Household Composition	Single, no children	22
	Single with children	2
	Couple, no children	6
	Couple with children	70
	Live with unrelated persons	0
Education	Up to High School	0
	High School	3
	Tertiary qualification other than Degree	9
	University Degree	77
	Post-graduate Degree	11
Household Income	< ¥50,000	1
	¥50,000 - ¥69,999	3
	¥70,000 - ¥89,999	4
	¥90,000 - ¥109,999	9
	¥110,000 - ¥129,999	16
	¥130,000 - ¥149,999	21
	¥150,000 or more	45

3.2 Statistical analysis

Statistical analysis was conducted using econometric software Nlogit6® (www.limdep.com) (Table 3) with choice probabilities for the MLEC model simulated based on 2000 Halton draws. The Pseudo-R^2 value indicates that the model has an acceptable level of explanatory power (McFadden 1974). Parameter estimates display a priori expected signs with strengthened food safety, enhanced animal welfare, environmentally sustainable, socially responsible and organic having a positive influence on yogurt choice along with all countries of origin except Thailand; which as well as higher prices, have a negative effect on yogurt choice. All attribute parameters were significantly different from zero at conventional levels of significance meaning that they play a meaningful role in consumers' yogurt choice. The standard deviations of all attribute parameter distributions are statistically significant, indicating that significant taste heterogeneity exists within the data for all attributes. In particular, examination of the magnitude of parameter standard deviations reveals that consumer preferences for country of origin exhibit the greatest preference heterogeneity, in particular, preferences for yogurt made in New Zealand (NZ) appears to be the most varied in this sample. The negative sign on the 'none-of-these' option indicates that, overall, respondents preferred one of the yogurt options presented to them in the choice sets rather than to opt-out of making a selection.

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Table 3 Random parameter error component model results

	Parameter Mean		Standard Deviation	
Strengthened food safety	0.546***	(0.04)	0.550***	(0.05)
Enhanced animal welfare	0.478***	(0.03)	0.308***	(0.07)
Environmentally sustainable	0.489***	(0.04)	0.350***	(0.07)
Social responsibility	0.401***	(0.04)	0.392***	(0.06)
Organic	0.542***	(0.03)	0.416***	(0.06)
Made in China	1.001***	(0.09)	0.992***	(0.08)
Made in Germany	0.905***	(0.05)	0.905***	(0.06)
Made in Spain	0.614***	(0.07)	0.428***	(0.12)
Made in Thailand	- 0.119***	(0.05)	0.717***	(0.09)
Made in NZ	1.551***	(0.11)	1.081***	(0.13)
Price	- 0.013***	(0.00)	0.127***	(0.00)
None-of-these	- 6.601***	(0.74)	4.913***	(0.46)
Drinking variety	0.571***	(0.03)	0.571***	(0.03)
Powdered variety	0.421***	(0.07)	1.043***	(0.09)
Latent random effects	4.341***	(0.41)		
Number of obs.	7,212			
Log Likelihood chi^2 stat (25 df.)	5,806***			
McFadden Pseudo-R^2	0.31			

***, **, * denotes statistical significance at 1%, 5%, and 10% level respectively

Standard errors in brackets

Respondents could select the 'none-of-these' option in a choice set. This is usually a truthful indication of their *unwillingness-to-pay* for the yogurts and associated attributes presented to them in a particular choice scenario. Fourteen per cent of respondents chose the 'none-of-these' option in at least one choice set, with this

option chosen 250 times in total (3% of all choices across the sample). These participants were asked a follow-up question to ascertain their main reason, which revealed: 1.3% could not afford to pay more for food shopping; 2.5% do not want to pay for the yogurt attributes on offer; 1.7% do not trust the product claims; 3.9% thought that not enough information was provided; 1.2% thought the other alternatives were unrealistic; and 2.7% preferred some of the attributes on offer but thought that none of the products overall represented their preferences.

When choosing their preferred option in each choice task, respondents may ignore some attributes and base their decisions on those remaining. This behaviour is commonly referred to as attribute non-attendance and can influence WTP estimates (Kragt 2013). In a separate analysis, we test for this influence using attribute attendance debriefing questions following each choice task (Carlsson et al. 2010) and find no qualitative improvement over model estimates presented in Table 3. Debriefing questions were also used to assess respondents understanding of the attributes presented in the DCE and their ability to answer the choice sets. Using a five-point Likert scale (agree, partly agree, neutral, partly disagree, disagree), most respondents agreed with the statement 'I understood the meaning of the yogurt attributes' (91%) with 1% disagreeing. Likewise a majority of respondents agreed with 'I was able to express what was important to me concerning yogurt labelling' (94%) with 1% disagreeing. In addition, 94% of respondents agreed with the statement 'it was easy to understand how I should provide my choices' while 1%

disagreed. These findings can be interpreted as an indication of the reliability of responses provided by consumers to the DCE.

3.3. Willingness to pay estimation

We simulate the unconditional distributions of WTP for yogurt attributes and report the median, 5th and 95th percentile (Table 4). The interpretation of WTP is the change in price per kilogram of yogurt that attains a particular attribute relative to a yogurt that does not. For example, a yogurt that is produced using environmental sustainable production methods attracts a premium of ¥39/kg over a yogurt that has not been produced in this way. Country of origin appears to play a central role in consumers' yogurt choice with the highest, and lowest, WTP for yogurt produced in NZ and Thailand respectively. Negative WTP for Thai yogurt indicates that consumers prefer not to consume this type of yogurt. Chinese origin is the second most valued country of origin at 77 yuan /kg reflecting the strong position that Chinese producers have in this market with the three top producers all being Chinese companies. This finding is also consistent with Yin et al. (2017) who find WTP for NZ branded infant milk formula to be higher than Chinese. While significant spread is evident across WTP for the countries examined here, the spread between WTP for sustainability attributes is narrower.

Food safety has received the greatest attention in the DCE literature applied to Chinese consumers and therefore provides the greatest range of WTP estimates

across dairy product attributes. Our estimate of 44 yuan/kg of yogurt for strengthened food safety is the highest for sustainability attributes considered here and is approximately 54% of the average price used in the DCE. Compared to other WTP estimates in the literature this is in the mid-range. Willingness to pay estimates in the literature have typically focused on milk products for children that were central to the milk safety scandal, whereas the yogurt product considered in this study has only relatively recently emerged as a strong consumer demand and has not been tainted with the stigma of association with significant safety concerns in the same way. For example, Xu et al. (2017) estimate WTP of 43 yuan/bottle of child milk beverage for presence of a government QS certificate. This WTP is approximately eight times higher than the average price used by the authors to describe the price of beverage alternatives. Child milk beverages are a relatively new milk substitute for 3-6year olds as parents look to substitute away from 'fake' milk formula and tainted liquid milk. As choices for these products are made by a parent for a child's consumption there is likely to be a relatively heightened awareness about food safety issues and stronger preferences for food safety relative to own consumption on yogurt that could explain this high WTP. Similarly, compared to the average price used in each studies DCE design, Ortega et al. (2012) find an approximately 200% WTP for UHT milk with government certification, Bai et al. (2013) find 244% WTP for liquid milk that carries traceability information, and Yin et al. (2017) find 70% WTP for infant milk

formula with traceability information. Other studies have found relatively lower WTP values, for example, El Benni et al. (2019) estimate WTP of 117 yuan for infant milk formula with security packaging, an approximately 25% premium compared to the average price used in their study, and Zhang et al. (2012) estimate WTP of 26% for traceable milk.

Table 4 Willingness to pay estimates

Attribute	Median	5th Percentile	95th Percentile
Strengthened food safety	44^ [54]*	38	50
Enhanced animal welfare	37 [45]	32	44
Environmentally sustainable	39 [47]	34	46
Social responsibility	31 [38]	26	38
Organic	42 [51]	37	49
Made in China	77 [93]	57	85
Made in Germany	70 [85]	62	81
Made in Spain	48 [58]	38	59
Made in Thailand	-9 [11]	-17	-2
Made in NZ	118 [143]	104	140

^WTP in ¥ (2017).
*WTP as per cent of average price used in choice experiment in square brackets

We find that Organic production is valued second highest of the sustainability attributes considered at 42 yuan/kg or 51% of the average price used in the DCE. Compared to the available literature this estimate is at the higher end of values. For example, WTP for an Organic attribute of liquid milk is estimated at 12% (Ding

and Veeman 2019). While WTP for baby milk formula has been found to range from 7% to 53% (Quan et al. 2018), WTP for a Chinese Organic standard in infant milk formula has been estimated at 15% (El Benni et al. 2019) and 20% (Wu et al. 2014) and 66% for a US Organic standard in the same study. Organic production is in part valued for its effect on improving the eating experience that may not be as relevant an attribute for an infant appetite and therefore explain some of the lower WTP estimates for these types of product. However, Organic is predominantly related with reduced agrichemical health effects and therefore associated with improved food safety that is likely driving the higher WTP values found.

Environmentally sustainable production is valued third highest of the sustainability attributes at 39 yuan/kg or 47%. There is scant dairy product application to compare this result to available in the literature with only one known available study that estimates WTP for liquid milk produced with practices that have a low impact on the environment (Gao et al. 2016). Unlike the present study that applies DCE to estimate multiple attributes WTP, Gao et al. (2016) use Contingent Valuation (CV) to estimate a single WTP of 40% for this attribute, a value remarkably close to the estimate found in the current study. In a study of consumer preferences for pork attributes, Lai et al. (2018) estimate WTP for claims regarding environmental standards on pig farms and finds consumers in Shanghai

WTP 30% more while Beijing consumers were willing to pay 52%. Both these estimates are consistent with the level of WTP found here.

Animal welfare and social responsibility as food and beverage product attributes have received very limited attention in Chinese consumer valuation applications to date. We find enhanced animal welfare is valued at 37 yuan/kg or 45% of average price used in the DCE. In addition, we find social responsibility, while valued the least of the sustainability attributes considered, to be still significant at 31 yuan/kg or 38%. No known dairy product studies are available to compare these values against, however in the same study by Lai et al. (2018) cited above, WTP for claims that a pork product uses animal welfare practices is valued at 19% by Shanghai consumers, and 33% by Beijing consumers compared to the average price used in their DCE. Ortega et al. (2015) find consumers were willing to pay 57% of the average price used in the DCE for an animal welfare attribute of pork and likewise 46% for eggs. Our WTP estimate of 45% is consistent with these estimates. In the only known available study examining Chinese consumer preferences for social responsibility, Yang et al. (2013) apply CV to estimate WTP for a Fair Trade attribute of a cup of coffee, and find an estimate of approximately 18%, less than half of that found in the current study.

4. Conclusions

The Chinese yogurt market is one of the world's biggest and is currently dominated by Chinese producers who are benefiting from strong growth in this relatively high value dairy product. Consumer demands for this perceived healthier dairy product over liquid milk are likely to persist and see a growing share of raw ingredient from farmers and dairy processes. Chinese dairy companies face substantial challenges in increasing supply to meet growing domestic demand and production targets within a highly competitive global market, while at the same time recognising and incorporating sustainability into production practices. Our results show that many consumers are willing to pay a premium for sustainability attributes that can play a role in ameliorating the environmental and societal pressures associated with agricultural intensification and production. These findings suggest that potential opportunities may exist for dairy companies in developing and expanding the role of sustainability attributes in consumer choices as an avenue for product diversification that contributes to profitability as well as sustainability goals. The public good characteristics of environmental and social problems associated with agricultural production externalities such as environmental degradation indicates a role for government policy that protects public interests and internalises non-market values. Rewarding and incentivising producers through obtaining a price differential in market could be supported though public policy that expands current food standards and certified labeling

schemes beyond the current focus on food safety to include environmental, social, and animal welfare objectives.

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The Emerging Domain of Social Entrepreneurship Research: A Classification and Trend Analysis

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Abstract

Social Entrepreneurship (SE) is an economically more practicing area and proved as tool for many countries to meet the development challenges of economy. A content and narrative analysis of the existing literatures available in this domain on social entrepreneurship reveals an absence of studies classifying the existing SE literature into various dimensions of social entrepreneurship with research categories. The wider coverage of this study presents a systematic review of 178 papers of peer reviewed journal articles published in last decade. It started with the academic domain of research in this area and reaches to SEEP (Social Entrepreneurship Emerging Practices) model of social entrepreneurial practices and its outcome as social change. The model is useful in a sense that the social entrepreneurial practices are crucial for future researchers to consider these contextual settings which imbibe the theoretical lenses in this domain.

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Introduction

It has been largely discussed that many issues are not summarized in the field of social entrepreneurship (Hati and Idris, 2014). Conceptual factors are the key aspects for the development of any domain in a specific discipline; this paper is focused on the identified established factors leading to the development of social entrepreneurship (Goncalves et al., 2015) and potential conceptual framework (Kidd et al., 2013; Agrawal and Hockerts, 2013; Kidd and McKenzie, 2014) that will surely enrich the discipline.

Social entrepreneurial activities (Gordin and Dedova, 2015) involved with societal challenges with a clear social mission (Hazenberg and Denny, 2014; Lepoutre et al., 2013; Desa and Basu, 2013) and a strategy that combines resourcefulness and innovation (Desa and Basu 2013). Social Entrepreneurship is recently emerged in academic field and it is required to have a conceptual framework to better understand its progress and potential (Chell et al., 2014; Kidd et al., 2015). Social entrepreneurship develops transformational leaders for creating opportunities (Harris et al., 2014), social value creation **(**Ghauri et al., 2014; Felício et al., 2013**)** aimed with social vision, sustainability, social networking, innovativeness and financial returns (Urban, 2015).

In previous researches, social entrepreneurs have been considered as change agents (Lehner and Nicholls, 2014; Rivers et al., 2015; Ebrashi, 2013; Trivedi and Misra, 2015; Maclean and Harvey, 2013; Schöning, 2013; Galvin and Iannotti, 2014) for most widespread social problems in developed and developing economies. Social entrepreneurship studies prominently embed the notion of innovation (Rivers et al., 2015; Sserwanga et al., 2014; Gorissen at al., 2014; Gawell, 2013; Shaw, 2013; Maclean and Harvey, 2013; Purnomo et al., 2015) in defining the constructs leading to social entrepreneurship. It has been found that the prime concern of the dimensions of social entrepreneurial practices is to satisfy social and environmental needs (Migliore et al., 2015).

Combining the classical and contemporary definitions with the ambiguities related to field of social entrepreneurship (Tandon, 2014) and its practices, many characteristics of the social entrepreneurs have been identified (Kraus et al., 2013), yet lack of research can be felt in the many aspects such as suitability of social entrepreneurial practices, social innovation frameworks for developing nations, expertise of community development and managing social challenges.

Social Entrepreneurs

Social entrepreneurs are the risk averters (Smith et al., 2014) and create a sustainable model according to the market needs in their area. Keeping this idea

about SEs in mind, Social Entrepreneurs are basically creative, path-breaker, who manages real world problem with powerful ideas. They possess different attitude and angle of solving the problem of scarcity and address the situation better than state led initiatives (Bornstein, 2007; Zahra et. al., 2009). Their managerial capability, practices (Sarpong and Davies, 2014) and management experience (Roy and Karna, 2015; Sarpong and Davies, 2014) comes out with a social benefits with sustainable business solutions. Social entrepreneurs are the individuals, possessed with a social entrepreneurial spirit, and motivated with a passionate humanistic approach to the society. By introducing innovative solutions to overcome communities from their most widespread problems for their growth and poverty alleviation in unfortunate regions of the various nations, social enterprises generates positive financial outcome (Gupta et al., 2015) and majority of the outcome leads towards long term positive social impact (Seddon et al., 2014; Glanzel and Scheuerle, 2015; Lundstrom and Zhou, 2014). The passionate ideology of social entrepreneurs compels them to face the practical challenges of core social issues. (Luke et al., 2013).

Actually, social enterprises work for profit oriented motive with the objective to create social value by using their approach towards of 3E's namely efficiency, effectiveness and economy (Stone and Gershenfeld, 2002; Herman and Renz, 2008; Polonsky and Grau, 2008). In connection with, social value creation has

been largely discussed by many researchers as a key orientation of social entrepreneurs. If social value creation is removed from the concept of social entrepreneurship, it will be just like an ordinary enterprise of for-profit motive.

Motivation of social entrepreneurs

Being ethical (Carroll, 1991) towards human being is the key motivation for Social entrepreneurial activity. They move ahead with an innovative solution and managerial practices to create opportunities for unfortunates and under privileged section of society. Social entrepreneurs have the courage to innovate and make revolutionary changes in traditional entrepreneurial practices. Now it is largely discussed that social enterprises are a hybrid and for-profit businesses that mix social goals and economic imperatives (Maclean and Harvey, 2013) to make social change with income generation for the communities, and prove a viable and sustainable business plan. They are working across the world in many challenging areas like:

- Building sustainable organizations for entailing social, economic and environmental concerns.
- Social innovation
- Providing survival communities
- Social value creation with commercialization

- Community development
- Social capital mobilization
- Public goods
- Resource mobilization

Keen to redress the social problems

Solving social issues are the key reasons for their passion for developing an enterprise. Their working culture elaborates them as a Philanthropic venture capital (PhVC) (Scarlata and Alemany, 2013). The discussed model in this work shows the main characteristics of social entrepreneurs (Othman and Wahid, 2013). On the part of public policy initiatives (Bryce, 2014) for social entrepreneurs many factors affect their practices as Tax policy, Financing, Organizational structure, Regulatory policy**.** Many developed and developing nations initiated certain regulations and Company laws to facilitate the social enterprise and its practices (Sørensen and Neville, 2014), who deserve credibility to change makers (Maclean and Harvey 2013) from grass root level. The prominent role of social entrepreneurial practices is to create economic and sustainable development especially for developing economies. The trend in this area signifies the growing community of social entrepreneurs envisages developing sustainable and innovative solutions to societal challenges and transformation.

Literature Review

Core attention about the entrepreneurs started with the theory of Joseph Alois Schumpeter who was an Austrian-American economist and political scientist. His belief about the entrepreneur's ability of bearing risk can push the economic development. Further the development of the theories elaborates that the Social Entrepreneurs have their own 'innovative, social value creating activity that can occur within or across the non-profit, business, or government sectors' (Austin et al., 2006). Human development can best be achieved by utilising and relying on a social entrepreneurship solution (Simha and Carey, 2009) which will surely occur with empowerment of human through employment and income generating initiatives. The literature on 'economic' and on 'social' entrepreneurship suggests wide and different possible definitions of the term "entrepreneur" (Nicholls, 2006; Sheerman, 2000; Thompson, 2002). The basic motivation of social entrepreneurs can be economic interest, civic attitude, or personal development (Henton, 1997) which converted finally as a for-profit motive business.

Social entrepreneurship is a combining concept that demonstrates the usefulness of business (Battilana and Lee, 2014; Roundy, 2014; Ratiu et al., 2014; Chell et al., 2014) principles in achieving sustainable social goals (Bannister, 2014). Social enterprises involved in creating positive social outcomes (Agrawal and Hockerts, 2013) for marginalized or separated communities who are facing day-to-day

survival challenges. The practices of social entrepreneurship are motivated by a passion to help, empower and revive the social, environmental (Migliore et al., 2015; Ming Ho, 2014) and economic challenges. Finally, their output comes out with a net social benefit. Their prime objective is to offer a better service (Gawell and Sundin, 2014) for improving the populace as a whole. The Social entrepreneurial practices for making social impact that might outweigh the economic impact and display high social and economic proclivity (Maclean and Harvey, 2013). The practices play role of catalyst for empowerment and social inclusion (Huang and Cox, 2014; Rymsza, 2015). Through income generation projects and experimental learning and Learning by doing (Chang et al., 2014) processes, they play a role of community entrepreneur for resource mobilization (Sloan et al., 2014).

Groups focused on social entrepreneurship may be divided into several categories according to their practices: community-based enterprises (Sloan et al., 2014), socially responsible enterprises, social services industry professionals, and socio-economic enterprises. Their output emerged in many forms as previous literatures established namely Social return ratio (SRR), Social return on investment (SROI), Social accounting and audit Socio-economic value SROI rate (Emerson and Cabaj, 2000). The existing body of literature recently exploited the influence of institutional (Formal and Informal) factors on SE and innovation, hybridity,

legitimacy and institutional logics (Pache and Santos, 2012; Tracey, 2012; Tracey et al., 2011). In contrast to business entrepreneurs, social entrepreneurs are said to create value. Values are at the heart of social entrepreneurship. Social entrepreneurship can bring social change by innovative social value creating activities (Chaudhary and Srivastava, 2013).

Its practices made a viable business innovative solution for developing nations too. It was found in many cases that social enterprises in agri-sector (Johansen, 2014) is viable and pave the path of innovative rural social entrepreneurial practices for welfare and proved themselves as an prominent contributor in healthcare, social inclusion and rural development (Hassink and Dijk, 2006; Sempik et al., 2010). Social enterprises are the path-breaker and have creativity for real world problem solver with innovative ideas (Bornstein, 2007; Zahra et al., 2009). A social enterprise involves in creating an innovative means for addressing the problem and generates social and economic values (Mair and Marti, 2006). They are engaged in producing ethical capital (Carroll, 1991; Lucy Frith; 2014) and Social impact (Mirabella and Wish, 2000; O'Neill and Young, 1988).

Methodology

Based on the information available through online databases, Content and narrative analysis has been performed in this paper. Online databases have been accessed from virtual platforms. Study was carried out at virtual platform of online library of Banaras Hindu University, Varanasi, India. The journal from all the qualitative, Quantitative and conceptual paper have been collected. 178 papers published in reputed journals, were extracted with two keywords for their selection criteria as **social entrepreneurship** and **social enterprise** with databases from Emerald, Springer link, Taylor and Francis, Science Direct, Sage, JSTOR, Wiley online, Cambridge, Indian journals.

The study investigates and analyzes the growing trends and changing dimensions of social entrepreneurship and social enterprises based on proposed model. Initially, each paper was analyzed deeply and then two scholars again reviewed it. The key insights of the literature were extracted that fulfills our research objective. Many factors, constructs have been identified during this process, which was further analyzed and presented in systematic order.

It focuses on classification of social entrepreneurship research on specific variables and concepts. This study is based on the contributions of various researchers who have suggested distinct factors, which proves to be effective for social

entrepreneurship. Theory development in the field of social entrepreneurship has been the research agenda for identification of the key factors in the domain.

Table-I: Emerging domain in SE and major discussions

Emerging domain in social entrepreneurship: A content analysis

Emerging Domain in SE	Major discussions	Location	Authors
Corporate Governance	legal form by govt. for social enterprise	England	Justin Larner and Chris Mason
Corporate Governance	corporate social entrepreneurship, socio-environmental risks into sustainability innovations	Brazil	Heiko Spitzeck, Claudio Boechat and Sergio Franca Leao
SEs in Health and Social Care	Mental health equity for transgender, Aboriginal, immigrant, refugee, and homeless populations	Canada	Sean Kidd and Kwame McKenzie

Social innovation	Social innovation projects by for-profit organisations	Italy	Naiara Altuna, Anna Maria Contri, Claudio Dell Era, Federico Frattini and Paolo Maccarrone
Work-Based Learning in SE	Enhancing graduate employability	Australia	Afreen Huq and David H. Gilbert
Work-Based Learning in SE	Among students in higher education institutions	Malaysia	Norasmah Othman and Hariyaty Ab Wahid
Work-Based Learning in SE	University initiative for promoting social innovation and social impact	UK	Bethany Alden Rivers, Alejandro Armellini and Ming Nie
Income generation by SE	Experimental learning, Learning by doing	London	Jane Yann Ching Chang,

			Abdelhafid Benamraoui and Alison Rieple
SE Performance measurement	Use of current performance tools is consistent with the specific features of social enterprises.	Wallonia	Hugues Mouchamps
Social Enterprises practices	Normative approach to the public by SEs	England	Pam Seanor, Michael Bull, Susan Baines and Martin Purcell
SE in Public Sector	How social entrepreneurship and social enterprises relate to public sector management and governance.	Sweden	Malin Gawell
Social Impact and Social Value	Evaluation of social enterprise outcomes to	South Africa	Boris Urban

	individual efficacy beliefs: social vision, sustainability, social networking, innovativeness and financial returns.		
Social Inclusion	A social enterprise organized in a hybrid model might (and should) combine its socially-oriented mission with economic effectiveness.	Europe	Marek Rymsza
Sustainable change by Social Entrepreneurship	How these social enterprises carry out with social impact, mobilize resources, and bring about sustainable social change.	Egypt	Raghda El Ebrashi

SE and sustainable development	corporate social entrepreneurship, Sustainable solutions social value creation	India	Pervez Ghauri, Misagh Tasavori and Reza Zaefarian
Community Development	Social entrepreneurship was found to create opportunity recognition, networking and innovation at both an individual and societal level.	Uganda	Arthur Sserwanga, Rebecca Isabella Kiconco, Malin Nystrand and Rachel Mindra
Organisational identity	collective entrepreneurial cognition	Finland	Jennie Elfving
SE for informal sector	socio-cultural phenomenon of entrepreneurship	Russia	Valery Gordin and Mariya Dedova
SE Performance measurement	Organizational performance	India	Sonia Mehrotra and Smriti Verma

Corporate Governance	Role of Public Policy in Success of social entrepreneurs	USA	Herrington J. Bryce
Social Innovation model	challenges such as energy scarcity and resource depletion	Belgium	Leen Gorissen, Saskia Manshoven and Karl Vrancken
Social entrepreneurship	Women social entrepreneurs in community center development.	London	Leon C. Prieto and Simone T.A. Phipps
Social enterprises	Challenges facing by social entrepreneurs	Scotland	By Mary Louise Brown, Seonaidh McDonald and Fiona Smith
Social venture in SE	Social venture, social-good and business	United States	Philip Roundy

factors of SE	assessing management factors for social enterprise	Italy	Roberto Linzalone Antonio Lerro
Sustaining mechanism for social good	Managerial experience and other corporate resources within the firm	India	Kaushik Roy and Amit Karna
Extrinsic factors to support social entrepreneurs	The role of socioeconomic status, religiosity, and organisational credibility to support Islamic social enterprises in Indonesia	Indonesia	Sri Rahayu Hijrah Hati and Aida Idris
SE Performance measurement	organisational legitimacy, practical challenges faced by social enterprises	Australia	Belinda Luke, Jo Barraket and Robyn Eversole
Social Innovation	Social entrepreneurship continues to explore new roads Inclusive business	NA	NA

Corporate Governance for SE	Bureaucracy, legislation and taxation mechanisms	Russia	NA
Social Interest of Social Entrepreneurs	Motivation of Social Entrepreneurs	South Africa and Ireland.	Karla Aileen Boluk and Ziene Mottiar
Organisational legitimacy	Cross-sector collaboration between social enterprises & corporations	UK	Benjamin Huybrechts and Alex Nicholls
Innovation by SE	innovative aspects social entrepreneurship initiatives	Sweden.	Malin Gawell
Managers' competences in social enterprises	Each one being further developed as knowledge, skills, and competences	Europe	Charlotte Moreau and Sybille Mertens
Emergence and formulation of social enterprises	Emergence and formulation of social enterprises for public policy tool	South Korea	Bokgyo Jeong

SE models for public policy	Micro-level appraisals of SE models	Australia	Chris Mason and Jo Barraket
Aspects of SE models	Influence of institutional factors in the current model of SE	Spain	Ramon Fisac and Ana Moreno-Romero
Emergence of SE	emergent phenomenon of social enterprises with an inclusive approach	Chile	Sebastian Gatica
Motivational drivers of SE	Local conditions and intentional mindset, in turn, triggers the individuals' passion for a cause	Nigeria	Adesuwa Omorede
SE in the agricultural sector	Green Care and Social Farming and social entrepreneurship theory	Jutland	Pia Heike Johansen
Social enterprise framework	Critique of Kerlin's macro-institutional social enterprise framework	USA	Thema Monroe-White, Janelle A. Kerlin and Sandy Zook

Capabilities of SE to succeed in extreme poverty	A model that highlights five key capabilities SE; comprehension, creation, connection, capability building and education and trust	Africa	Sudheer Gupta, Stefanie Beninger and Jai Ganesh
Achieving sustainable solutions by SE	Social enterprises ITC training, helping, and friendship schemes; volunteering support and history and culture projects)	Europe	Sandy Whitelaw and Carol Hill
SE in health Sector	Social enterprises to provide health-care services	UK	Lucy Frith
Legitimacy seeking in social enterprises	Embedded managerial initiatives and practices which give form to the legitimating activities of social enterprises.	UK	David Sarpong and Clayton Davies

SE Performance measurement	Examining organizational learning in social enterprises.	India	Ankita Tandon
Social enterprise strategy	Potential of social enterprise as a strategy for poverty reduction	Canada	Sarah Fotheringham and Chad Saunders
SE as vehicle of development	Innovative ways of obtaining economic growth, social development and environmental sustainability	Spain	Juan Carlos Perez de Mendiguren Castresana
Social purpose enterprises	Social support for enterprises	Canada,	Andrea Nga Wai Chan
SE Corporate Governance	SE's three forms of governance structures: government-supervised, shareholder-controlled and member-regulated.	China	Xiaomin Yu

Personality trait differences between social and traditional entrepreneurs	Social entrepreneurs exhibited statistically significantly higher levels of creativity, risk-taking and need for autonomy than traditional entrepreneurs	UK	Rachael Smith, Robin Bell and Helen Watts
Social Inclusion	"Social mission focus", "heroic social entrepreneur", "social impact".	UK	Fred Seddon, Richard Hazenberg and Simon Denny
SE and Team work	Team work in Social Enterprises	Portugal	Celso Alves Pais, Cristina Parente
Community-based social entrepreneurial management systems	The applicability of community-based social entrepreneurial management systems as a means of fostering socio-economic development	Germany	Philip Sloan, Willy Legrand and Claudia Simons-Kaufmann

Indian Journals

Social Enterprise Model	How cooperatives as a social enterprise model	India	Shilpashri.A and Dr. T N Sreedhara
Customized SE Theory	the social problems	Iran	S. Aligholi Rowshan and Amir Forouharfar
Social capital and social entrepreneurship	Role in development of social entrepreneurship by social entrepreneurs	Iran	Morad Mirzadeh, Mahbobe Rashidi and Vahide Gorgij
Social Entrepreneurship Efficiency	SE efficiency model user friendliness	Iran	Amir Forouharfar, S.Aligholi Rowshan and Habibollah Salarzehi

JSTOR

SE as Public governance	SE as competitive area	Southern California	Jack H. Knott
Social Enterprise	Role for the SE as private sector in poverty alleviation.	California Management Review	California Management Review

SAGE Journals

Stewardship behavior of SE	Activities of SE towards providing desired sustainable solutions	India	Shubhabrata Basu and Anita Sharma
Addressing social problems through SE	Sustained positive social change	USA.	Chitvan Trivedi and Shalini Misra

Skills of social enterprises	Generate sustainable livelihoods for poor communities	India	Tamsin Bradley, Avijit Chakravarti and Jane Rowan
Impact of social enterprises	Possibilities of social enterprise and social innovation	New Zealand	Eleanor Shaw
Social Innovation and SE	Social innovation might play in regenerating communities. social and economic change makers	UK	Mairi Maclean and Charles Harvey
Social enterprise and social entrepreneurship	Innovative and entrepreneurial activity for social purposes	Vietnam	Belinda Luke and Vien Chu

Science Direct

SE Performance measurement	The difficulties in building legitimacy	Toronto	Trish Ruebottom

SE Performance measurement	The effects of social entrepreneurship and transformational leadership on organizational performance	Portugal	J. Augusto Felício, Helena Martins Gonçalves and Vítor da Conceição Gonçalves
SE in Business Schools	learning by doing in business schools	Taiwan	Yen-Chun Jim Wu, Tsuang Kuo and Ju-Peng Shen
Emergence of SE	Emergence of SE	India	Nia Choi and Satyajit Majumdar
Environmental protection by SE	Innovation of eco friendly bioresidual briquetting machine	India	Kapil Joshi, Vinay Sharma, Sukrit Mittal

Impact of entrepreneurship	Social entrepreneurship education at the Humanities	Denmark,	Tine Lynfort Jensen
Teaching model on SE	Trained professionals for social problem solving	India	Rama Krishna Reddy Kummitha and Satyajit Majumdar
Motivations for SE	Motivations for willing to create and innovate	Portugal	J.C. Braga, T. Proenca and M.R. Ferreira
Social Networking for SE	Social entrepreneurship can strongly benefit from a wise use of social media and social network and networking.	Romania	Romulus Oprica
SE Performance measurement	Measured economically	Europe	Atu Bagus Wiguna and Asfi Manzilati

Service-Learning as training for social entrepreneurship	Development of initiative, creativity, future vision, confidence, tenacity and positive thinking	España	Susana Torío López, José Vicente Peña Calvo and Jesús Hernández García
SE: a conceptual model of brand orientation	A conceptual model of brand orientation in the context of Social Entrepreneurial Businesses (SEOs) is introduced	Germany	Holger J. Schmidt and Carsten Baumgarth
The Effect of Personality Traits on SE Intentions	Relationships between personal characteristics and their intention towards social entrepreneurship	Istanbul Turkey	Oguzhan Irengun and Sebnem Arikboga

SE Education	It is possible to develop children's abilities	Turkey	Muammer Sarikaya and Eda coskun
Agro-based social entrepreneurship	Focus on the community, bridging social problems, able to provide creative solutions	Indonesia.	Dwi Purnomo, Totok Pujianto and Nurfida

Springer Link

Ethical issues in SE	Social value creation over economic value creation is indeed what makes social entrepreneurs unique	Belgium and Netherlands	Sophie Bacq, Chantal Hartog and Brigitte Hoogendoorn
SE as Main Drivers of Social Innovation	Notion of innovation and SE	UK.	Mirjam Schoning
Integrity of Social Entrepreneurs	Social venture capitalists	Germany	Ann-Kristin Achleitner,

			Eva Lutz, Judith Mayer and Wolfgang Spiess-Knafl
Sustainability of Social Entrepreneurs	1. Entrepreneurship in the public interest 2. Especially Social Entrepreneurs, social change, Innovation	UK.	Mirjam Schöning
Motivation of SE from life experiences	How social entrepreneurs obtain the necessary skills, knowledge, and motivation to take on this role.	Brazil	Laura Scheiber
SE and the Third Sector	Policy implementation with regards to social enterprises	South Korea	Eun Sun Lee
Social Change by Social Entrepreneurs	Social entrepreneurs launch change process that are multi-pronged	Poland	Agata Zabłocka-Bursa and

	and that have long-term results on the individual as well as societal levels.		Ryszard Praszkier
Organizational level in SEs	Social entrepreneurs as caring entrepreneurs	France	Kevin Andre and Anne-Claire Pache
Alternative Food Networks by Social Entrepreneurs	The social entrepreneurship dimension to satisfy social and environmental needs and farmers' participation in alternative food networks (AFNs)	southern Italy	Giuseppina Migliore, Giorgio Schifani, Pietro Romeo, Shadi Hashem and Luigi Cembalo
Social upliftment by SEs	Social entrepreneurs build and enhance weak ties in disenfranchised groups and communities.	Poland	Ryszard Praszkier

Wisdom, Spirituality, Social Entrepreneurs, and Self-Sustaining Practices	An actionable model for all to innovate and solve problems in our everyday lives and for the benefit of humanity by carving out personal retreats	New York	Sandra Waddock and Erica Steckler
Commercial and Social Entrepreneurs	How science communication can improve lives, address human health problems or help the environment.	South Africa & Australia	Graham Walker
Social Impact of SEs	Major challenges for social impact by SEs	Germany	Gunnar Glanzel and Thomas Scheuerle
Vision in Social Entrepreneurship	Conceptual model of the vision–action or action–vision trajectories of social entrepreneurs	USA	Sandra Waddock and Erica Steckler

Humility in Social Entrepreneurship	Social entrepreneurship is emerging globally as a force for both social change and business model innovation.	USA	Catalin Ratiu, Bennett Cherry and Troy R. Nielson
Policy Implications Social Entrepreneurship and	Determinants of social entrepreneurship individual and environmental determinants.	Sweden	Habib M. Kachlami
Ethics in Social Entrepreneurship	Practice-based approach of ethics in social entrepreneurs	Switzerland	Pascal Dey, Chris Steyaert
Social Entrepreneur Framework in health sector	Social entrepreneurship framework is suggested as a means of better understanding how mental health disparities might be addressed.	Toronto,	Sean A. Kidd and Kwame J. McKenzie

Dimensions of SE	Three-dimensional disciplinary perspective commercial entrepreneurship, social entrepreneurship and humanistic entrepreneurship	USA	Anders Lundstrom and Chunyan Zhou
Defining Social Enterprise	Examine the place of social entrepreneurs within the social enterprise zoo	Europe	Dennis R. Young and Jesse D. Lecy
Measuring social entrepreneurship activity	Early-stage social entrepreneurial activity (SEA) by region	USA and other nations	Jan Lepoutre, Rachida Justo, Siri Terjesen and Niels Bosma
Social Entrepreneurship and Business Ethics	Distinction from economic entrepreneurship and	UK	Elizabeth Chell, Laura J. Spence, Francesco

	potential in solving social problems		Perrini and Jared D. Harris
Social Entrepreneurship: dynamics	1) Definitions and conceptual approaches, 2) Impetus, 3) Personality, 4) Impact and performance, and 5) Future research agenda	UK	Sascha Kraus, Matthias Filser, Michele O'Dwyer and Eleanor Shaw
Scaling Decisions in Social Entrepreneurship	Model has implications for research and practice at the interface of ethics and social entrepreneurship.	USA	Brett R. Smith, Geoffrey M. Kistruck and Benedetto Cannatelli
Social Entrepreneurship perspectives	Social entrepreneurs are able to create value and not all value capture	France	Alejandro Agafonow

	strategies can serve a social goal		
The economic and non-economic dimensions of SE	Three types of well-known social entreprises have been chosen: (1) Charitable clubs and associations; (2) cooperatives and mutuals; (3) conventional private sector foundations.	Canada	Michel Dion
Social Entrepreneurship	Significant attention to social entrepreneurship	Sweden	Anne Pierre, Yvonne von Friedrichs and Joakim Wincent
Social Entrepreneurship	Social enterprises for solving the salient social, political and environmental problems	Lebanon	Dima Jamali and Liya Kreidie

	that are stifling economic development		
Regulatory Policies for the Development of SE	Indicators of evaluation for social entrepreneurship development regulatory policies	Iran	Zahra Arasti & Hadi Zarei & Fatemeh Didehvar
Policy Strategy of Supporting Social Entrepreneurship	Social entrepreneurship and social enterprises in creating social value and achieving a social impact	Sweden	Anders Lundstrom and Chunyan Zhou
SE In third sector	SE organisational growth and measures of economic and social benefit	Australia	Chris Mason
Creating Public Value by SE	Social enterprises fulfill essential public value failures via the search and exploitation of new opportunities	USA	Thema Monroe-White

Health and social service sectors by SEs	Both the potential of SE as a frame for advancing services and a paucity of research into specific processes and impacts	Canada & India	Sean A. Kidd, Nick Kerman, Donald Cole, Athena Madan, Elisha Muskat, Shoba Raja, Susmitha Rallabandi, Kwame McKenzie
Social Entrepreneurship, Gendered Entrepreneurship	How welfare services are organized, including both the public sector and the third sector—to address questions about gender.	Sweden	Malin Gawell and Elisabeth Sundin
Social dimension' of entrepreneurial ventures	Social entrepreneurship as an entrepreneurial process initiated by social entrepreneurs with social	Sweden & China	Anders Lundstrom and Chunyan Zhou

	goals in pursuit of social value creation		
SE ventures for social impact	Entrepreneurial ventures respond to needs in society	Sweden	Malin Gawell
Different Forms of SE	Entrepreneurial ventures respond to needs in society	Sweden	Malin Gawell
Directions in Social Entrepreneurship	Innovation, Sustainability	USA	Charles Wankel and Larry Pate
Social Enterprise: A kick start model	As change agents, innovators, practical dreamers, and pioneers of our era and how social enterprise differs from NGOs	Sub-Saharan Africa	Michael D. Galvin and Lora Iannotti
SEs social aim for education and health care	Philanthropic venture capital (PhVC) maximization of social	US, Europe	Mariarosa Scarlata and

	return through a long-term financial commitment		Luisa Alemany
Creating awareness about social enterprises	Serious games awareness of SEs could be designed to address specific social issues like civic discipline, sanitation, health, hygiene, water, power, and environmental protection.	India	Bharat Damani, Vishal Sardeshpande and Uday Gaitonde
SEs activity for Rural communities	Productive contributions to destination communities	United States	Nina Glasgow , Hosik Min, and David L. Brown
SEs for healthcare services	Social entrepreneurship offers an innovative solution to meet societal needs, which is	Malaysia	Evelyn Lai-Ming Ho

	sustainable, pervasive and positive.		
Social enterprise perspective	How social enterprises (SEs) can more efficiently and effectively provide goods and services to the needy	New Zealand and Australia	Martie-Louise Verreynne & Morgan P. Miles and Candice Harris
Social Entrepreneurship and Sustainability by Innovation Ecosystems	Addressing the connection between innovation ecosystems and social entrepreneurship	Brazil	Ana Cristina O. Siqueira, Mario P. Monzoni, Sandra R. H. Mariano, Joysi Moraes, Paulo D. Branco and Ana M. Coelho
SE Performance measurement	Increase the effectiveness of social	America, Europe, and Asia	Noushi Rahman and

	entrepreneurship centers/programs		Rebecca Tekula
Corporate Governance in SE	The social enterprises are affected by the single market's rules in terms of banking regulations	Europe	Lucica Matei and Ani Matei
social entrepreneurship from an ecological perspective	organizational ecology by SEs	USA	Fredrik O. Andersson and Michael R. Ford
Corporate Governance in SE	Policy interventions in support of social enterprise and development of an Institutional 'Ecosystem' for Social Enterprise	Scotland	Michael J. Roy, Neil McHugh, Leslie Huckfield, Alan Kay and Cam Donaldson

Implications for educational policy in SE's education	Entrepreneurial self-efficacy is developed in students participating in a social enterprise module	UK, EU, Asia	Jess Co and Sarah Cooper
understanding social entrepreneurship	local governance, community development, and the role of social capital in (social) entrepreneurship	Romania	Maria-Carmen Pantea
Framework for practitioners of social entrepreneurship	Social entrepreneurship focuses on creating societal benefits using modern management practices		Anirudh Agrawal and Kai Hockerts
Social Entrepreneurship Framework	SEs have greatest impact on immigrant and refugee health	Canada	Sean A. Kidd, Kwame J. McKenzie and Mulugeta Abai

Social-Entrepreneurship Advantage	Still, definitional and operational challenges linger, and the empirical basis for assessing the effectiveness and impact of socially entrepreneurial nonprofits remains limited	USA	Fredrik O. Andersson and William Self
Inclusive growth CSR, social entrepreneurship and social capital at community level	Involves social responsibility; increasing notoriety in the marketplace; developing actions to benefit others; demonstrating concern about challenges facing a community; increasing credibility; enhancing reputation; and creating a	Portugal, USA	Dina Alexandra Marques Miragaia, Catarina Isabel Nunes Martins, Darlene A. Kluka and Andrew Havens

	company culture that is inclusive of a community		
Notion of social entrepreneurship	The notions of opportunities, governance and resource issues, including ones that apply to the non-profit organisations	Romania	Maria-Carmen Pantea
Hybridity and Social Entrepreneurship	Hybridity in social housing by SEs	Ireland	Mary Lee Rhodes and Gemma Donnelly-Cox
Differences Between Social Entrepreneurship and Social Business	Mission, Finance, and Innovation Social entrepreneurship and social business as a fertile domain for management research	Germany, Australia	Markus Beckmann, Anica Zeyen, and Anna Krzeminska

Financing options and scaling models of SE	Social enterprises use various revenue streams to cover their operational expenses and financing instruments for longer-term investments	Germany	Wolfgang Spiess-Knafl and Stephan A. Jansen
Corporate Governance in SE	Organizational Legitimacy of a Social Enterprise in a Developing Economy	India	Sougata Ray and Anjan Ghosh
SE Performance measurement	Application of Strategic Management tools and the effectiveness and efficiency of WISEs in the social economy work integration social enterprises (WISEs)	Spain	Joan R. Sanchis-Palacio & Vanessa Campos-Climent & Antonia Mohedano-Suanes

Phenomenon of Social Enterprises	Establishment of social enterprises as a cultural practice, for the promotion of a more equitable social and economic development	Brazil	Claudinei Pereira Goncalves, Kester Carrara and Richardson Moro Schmittel
New emerging ‘‘SE field	The terms social entrepreneur, social entrepreneurship, and social enterprise	Europe	Andrea Bassi
Social enterprise and public enterprise	Public enterprise that reflects the impact of the privatization movement, and the rise of social enterprise as an alternative	Hong Kong	Mark Richard Hayllar and Roger Wettenhall
Legitimacy for Work Integration SE	The replication of for-profit practices can create	Sweden	Jari Kuosmanen

	a tension with the concurrent aim of being an innovative and empowering enterprise for people who otherwise would be excluded from the labor market		
Socio-Economic Impact of SE	Social enterprise has become a key phenomenon in providing public services in many developed countries	Italy	Giacomo Manetti
SE and Inclusion of poor community	Digital divide and social entrepreneurship to propose a social entrepreneurial system which uses universal service funds to spread IT technologies, leading to greater	Taiwan	Shu-Chin Huang and John Lew Cox

	entrepreneurship and the gradual alleviation of poverty among disadvantaged people		

Taylor and Francis

SE in Health sector and techno-nationalism	Role of social entrepreneurship and the discourse of techno-nationalism social entrepreneurship	Iran.	Tahereh Miremadi
Social Enterprise, Capabilities and Development	Development strategies of the social economy that has emerged from the social movement resistance	Latin America	Margherita Scarlato
Support services to external social enterprises	Transfer of local authority support services to external social enterprises.	UK	Richard Hatcher
Social entrepreneurship and	The socio-economic, cultural and political implications and	Uganda	Lyndsay M.C. Hayhurst

sport, gender and development	consequences for social entrepreneurship		
Social enterprise-based transitional labour-market programmes	Social enterprise-based transitional labour-market programmes can best be understood as neo-liberal technologies of the self that seek to transform persons	Australia	Peter James Kelly, Perri Bree Ellis Campbell and Lyn Harrison
Social Entrepreneurs in sustainable development	This win-win outcome is possible through the innovative approaches and creative thinking of social entrepreneurs act as catalysts for sustainable development	Bangladesh.	Fara Azmat
Social entrepreneurship research	Social entrepreneurship appeals to social workers as an attractive way to create sustainable social capital through economic value creation.	UK	Shaynah Neshama Bannister

Recruiting, managing and rewarding workers in SE	Social entrepreneurship has grown in importance as a cultural and economic phenomenon in both developed and emerging economies	Austr alia	Alex Newman, Susan Mayson, Julian Teicher and Rowena Barrett
Social entrepreneurship as an employment pathway for people with disabilities	Social entrepreneurship (SE) offers one alternative employment pathway	USA	Sarah Parker Harris, Maija Renko and Kate Caldwell
The role of social entrepreneurship	Social entrepreneurship may help firms to discover new potential and innovative field of application	Italy	Andrea Ganzaroli, Ivan De Noni and

			Luciano Pilotti
The role and characteristics of social entrepreneurs	Key characteristics of social entrepreneurship in the process of rural cooperative development	Chin a	Hong Lan, Ying Zhu, David Ness, Ke Xing and Kris Schneider
Social finance and crowd funding for social enterprises	SEs is the necessary actions, benefits and implications for the involved actors from the public, private and third sector.	UK	Othmar M. Lehner and Alex Nicholls
Social entrepreneurship	Cultural, social, and economic preconditions for social entrepreneurship	Engl and and USA	Niels Rosendal Jensen
Approach to teaching social entrepreneurship	Learning-by-doing approach discussed in this paper is capable of developing the social	UK	Jane Chang, Abdelhafid

	entrepreneurial skills of students, but there are challenges that need to be addressed if such an approach is to be effective		Benamraoui and Alison Rieple
Health care social enterprises	Social enterprises have been actively encouraged to spin out of the National Health Service (NHS)	UK	Kelly Hall, Robin Miller and Ross Millar
Hybrid social enterprises	Combine the organizational forms of both business and charity at their cores are an ideal type of hybrid organization	UK	Julie Battilana and Matthew Lee
The myth of social enterprises	Increase the capacity of social enterprises to deliver or replace public services	UK	S. Teasdale, F. Lyon and R. Baldock

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Profile of the Social Entrepreneur	The creation of sustainable social value is a key characteristic	Spain	Miguel A. Sastre-Castillo, Marta Peris-Ortiz and Ignacio Danvila-Del Valle
Prominent and innovative profiles of social enterprises and entrepreneurs	Social entrepreneurship is as a subfield of entrepreneurship	UK	Katerina Nicolopoulou
Sentimental drivers of social entrepreneurship	Social entrepreneurship plays an important role in local development in emerging economies	China	Daphne W. Yiu, William P. Wan, Frank W. Ng, Xing Chen, and Jun Su
Social enterprise policy design	Government has limited the input of stakeholders and used an approval system to	UK and	Chisung Park and Mark Wilding

	control access to the social enterprise name	Korea	
Motivation affects the progress in building a new venture	Social entrepreneurs are celebrated as transformational leaders whose accomplishments create opportunities for those less fortunate	United States	Maija Renko
Dual-Mission Management in Social Entrepreneurship	Social enterprises are at risk of undermining the authenticity of their social purpose in the attempt to manage and balance multiple stakeholders expectations	UK	Laura A. Costanzo, Clodia Vurro, Doug Foster, Flavio Servato, and Francesco Perrini
Development of social enterprises	For-profit businesses in the social sector	China	Hua Wang, Ilan Alon, and Chris Kimble

Multiple goals of SEs	Social enterprises and social goals	UK and US	Robin Stevens, Nathalie Moray, Johan Bruneel, and Bart Clarysse
Resource constraints in global social entrepreneurship	For ventures operating in the public interest, the process of effective resource mobilization can be especially critical to the social mission.	USA	Geoffrey Desa and Sandip Basu
Nonprofit Management and Social Entrepreneurship	Managerial practices of SEs	United States	Peter Frumkin

Cambridge journal

Corporate Governance	How Should Company Law Balance Flexibility and Credibility	Europe	Karsten Engsig Sørensen and Mette Neville

Figure 1: Descriptive analysis of Publications (Publisher wise)

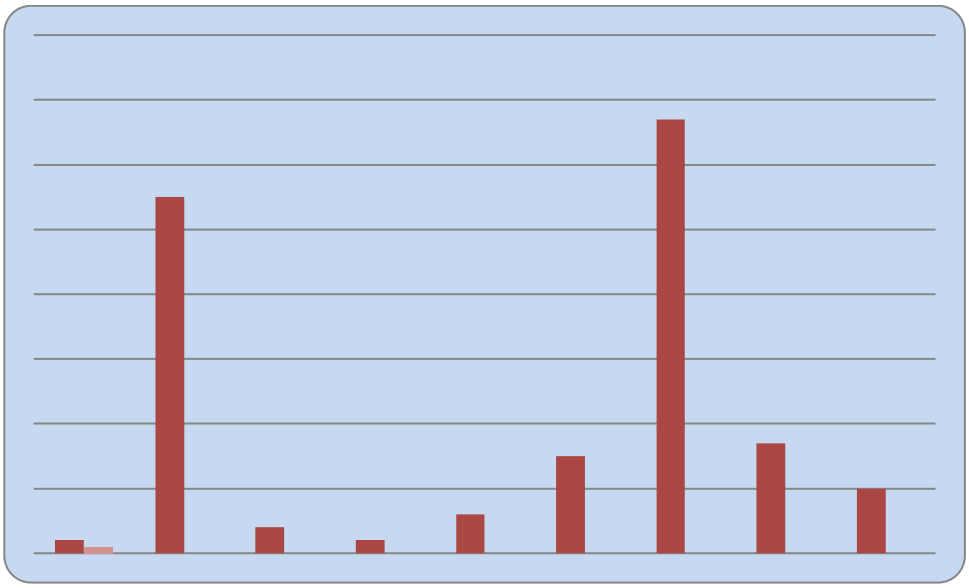
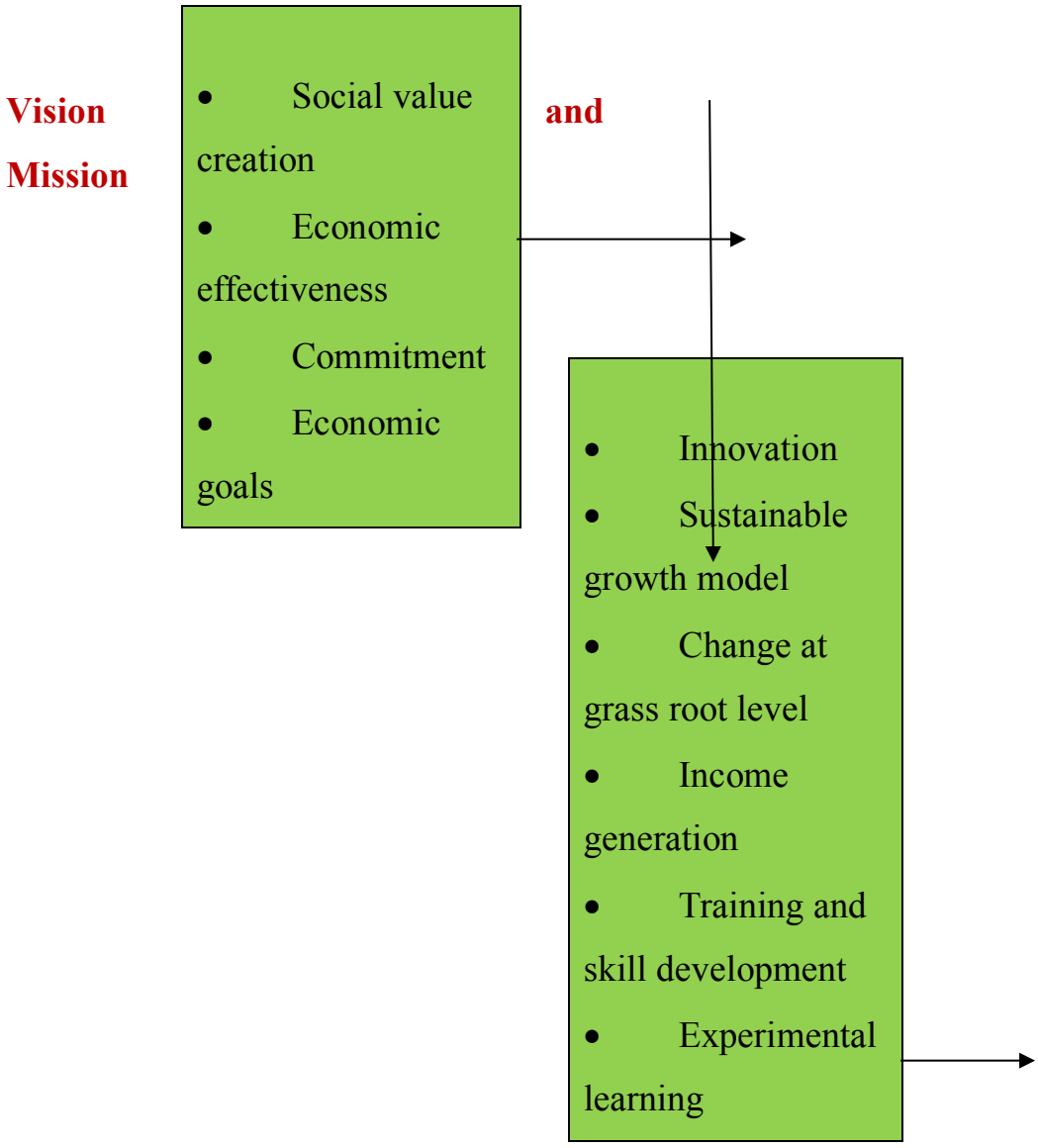


Figure 1 shows that, 178 papers have been extracted from seven online databases. In which, 67 papers are from Springer link, 55 from Emerald, 17 from Taylor and

Francis, 15 from Science Direct, 10 from Wiley online, 6 from Sage, 4 from Indian journals, 2 from JSTOR, 2 from Cambridge, were found for the present work.

On the basis of emerging domain in SEs and major discussions in table I, A conceptual model is created, called as SEEP Model (Social Entrepreneurship Emerging Practices). The model is useful in a sense that the social entrepreneurial practices are crucial for future researchers to consider these contextual settings which imbibe the theoretical lenses in this domain. One way to consider contexts outside the enterprise would be to study SE activities based on the country of origin (i.e., developed countries, developing countries) (Parul Gupta, et al.). The reveled dimension in the SEEP Model is determining the contextual settings regarding country-specific features for inhibiting SE activities. Further it also reveals that there are possibilities more studies based on the emerging domain of SE from developing countries. The socio-cultural differences, domestic competitors and underdeveloped institutional frameworks in developing countries may be also tackled. (Parul Gupta, et al.).

Figure 2: SEEP Model (Social Entrepreneurship Emerging Practices)



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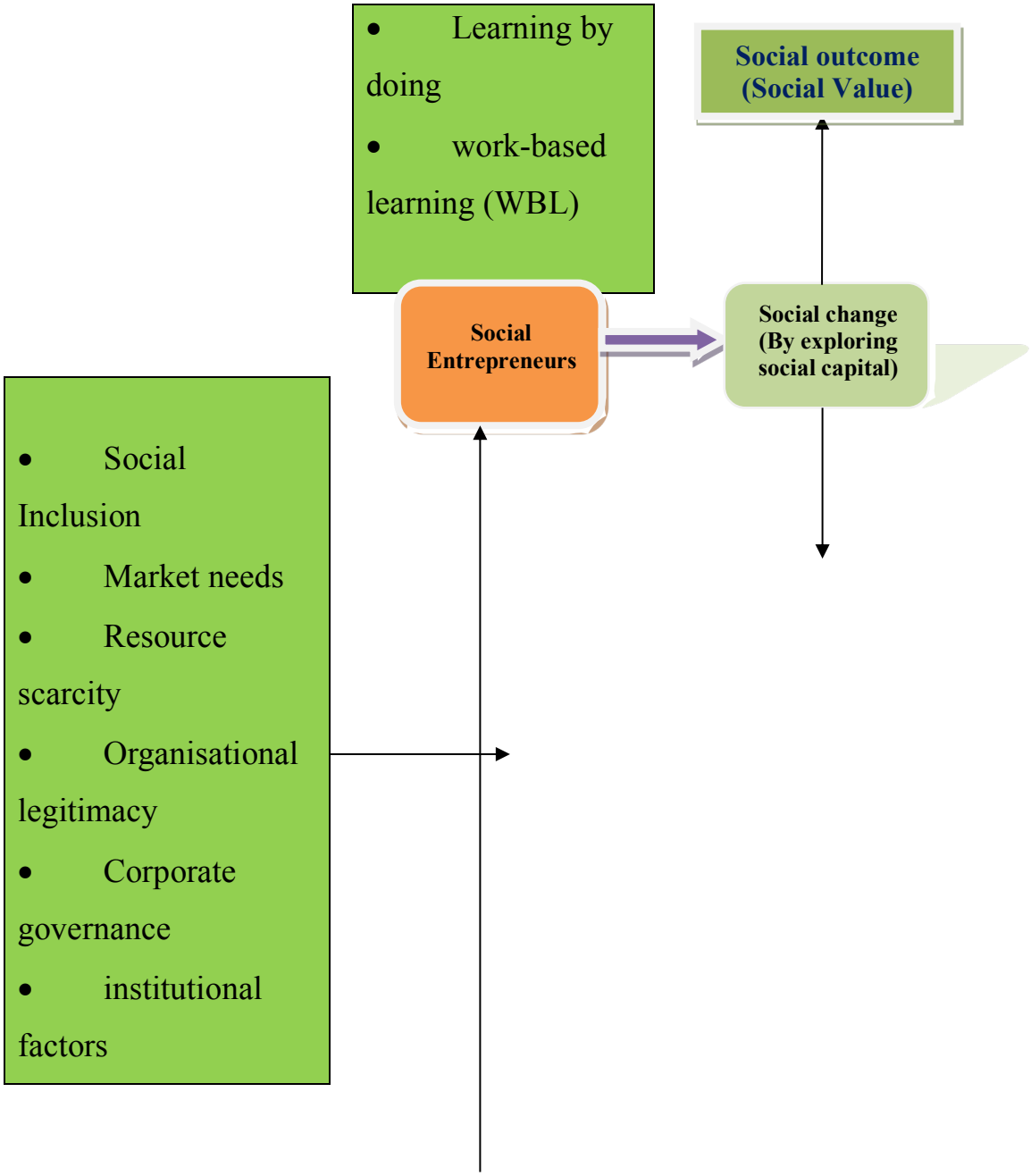
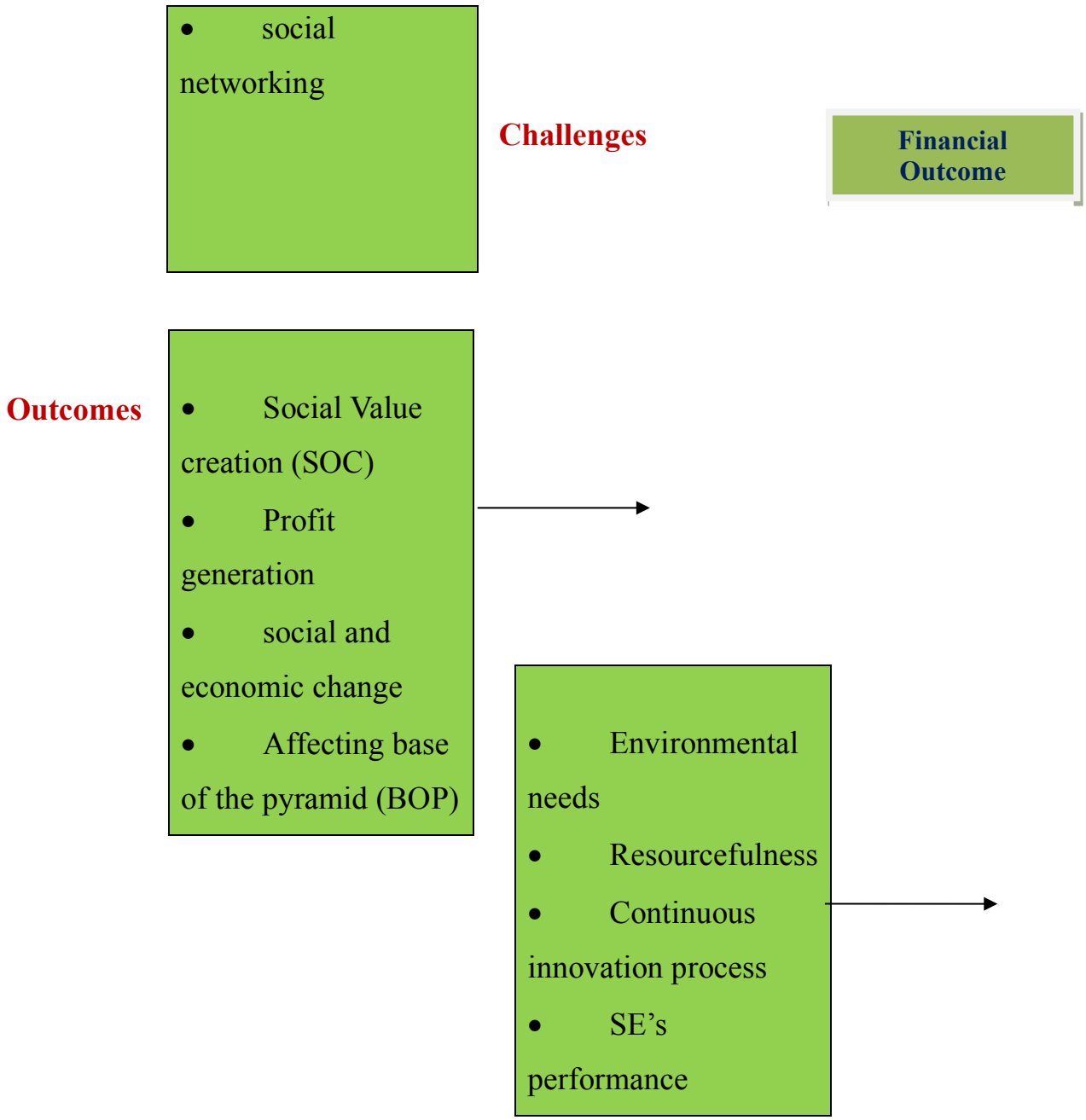
Practices





Sustainability

- Full filling all societal needs

SEEP Model

The famed model exhibits the crux of the literature review classification of social entrepreneurship. Literature review classification was based on the proposed model of social entrepreneurship. Model of the study shows a wide conceptual framework of the area. Model depicts vision & mission, practices, challenges, outcomes, and sustainability of the core concept leading towards social change. The conceptual model was the basis for the classification of literature for the purpose of the study. Social value creation, economic effectiveness, and economic goal were considered for visualizing the vision of the domain.

Innovation, sustainable growth, income generation, training and skill development, experimental learning, work based learning are some of the basic practices followed in the area of social entrepreneurship. These have been considered for identification of the numerous practices followed by social entrepreneurs. Another component of the model covers challenges of social entrepreneurship. Social

inclusion, market needs, resource scarcity, organizational legitimacy, corporate governance, social networking are critical challenges in social entrepreneurship. Literature was identified addressing the challenges of the area and handing them efficiently. Outcome of social entrepreneurship is an essential thought process of social entrepreneurship. It was considered as an integral part of the area. Social value creation, profit generation, social and economic change might be the outcome of social entrepreneurship. Environmental needs, resourcefulness, continuous innovation process are the foundation of sustainability factor of social entrepreneurship.

Many researchers have classified the social entrepreneurial activities based on common factors like innovative solutions, resource exploration, employment generation, skill development, environmental protection initiatives etc. (Desa and Basu 2013; Bacq et al., 2014; Lundstrom and Zhou, 2014; ; Stryjan, 2006; Picot, 2012; Migliore et al., 2015).

Usefulness of SEEP Model

The result of the research depicts new organizational performance that creates, measure, and sustains social change. Based on these identified factors in previous researches, model extends for defining literature with proposed factors leading to societal change. Factors have been identified for long-term viability of social

entrepreneurial activities especially in those areas where policy makers and administrators are unable to tackle the social problems.

The study found the important factors of social entrepreneurial activities such as innovation, social inclusion, social value creation, economic effectiveness, environmental needs, social & financial outcomes etc. that has been claimed as useful tool to policy makers in segmenting the population when designing and implementing programs and strategies to enhance Social enterprise development.

The study not only produces several practical implications for social entrepreneurs but also opens new research avenues to examine social enterprise for academicians and researchers. The study investigates relevant practices and activities that social enterprises utilize for providing key alternative solutions to the societies in case of limited state-led public policies.

Relevance in current scenario of SEEP Model

The majority of researches have been conducted in developed nations like USA, UK and EU countries; there is a need to conduct the social entrepreneurship research in developing nations like India with those factors ideal for these economies. It is not necessary that the factors worked in developed nations for the development of social entrepreneurship, may necessarily suitable for developing

nations. Therefore, there is a need to explore and identify those factors which will surely guide the development of social entrepreneurship in growing economies. There is a need to conduct interdisciplinary research in this domain particularly with those disciplines which are close to social entrepreneurship like economics, commerce, Management public administration and public policy. This paper provides the right path for social entrepreneurial practices creating social change actually explored by previous researcher.

Literature review classification in the study leads for recognition of key role of social entrepreneur in efficiently contributing to the attainment of sustainable development objective. It creates a better awareness and environment of the present status of the field. It is being observed that the area of social entrepreneurship is to be further explored for high quality and impact research. Contribution to social entrepreneurship literature signifies and specifies dimensions that are closely related to the areas of the domain. Classification and bibliographic analysis lists and elaborates wider perspective of social entrepreneurship which will definitely help academicians and researchers for future research direction.

Multidisciplinary research model can be developed with a view to enhance and enrich social entrepreneurship. Basically, multidisciplinary research integrates and

conceptualizes best practices from a holistic point of view. Further, review analysis facilitates in streamlining of discussion and presents a way for further research in the field of social entrepreneurship.

Limitations of the study

The current work has some limitations. The qualitative, Quantitative and conceptual paper have been collected from online databases of Emerald, Springer link, Taylor and Francis, Science Direct, Sage, JSTOR, Wiley online, Cambridge, Indian journals. Hence, review classification literature of the domain cannot be generalized on entire research in the area of social entrepreneurship. Further, the extracted 178 papers published are only between the period of 2013 to 2015, which may not represent the thrust area of social entrepreneurship.

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