

CRITICAL SUCCESS FACTORS FOR ADOPTING PUBLIC PRIVATE PARTNERSHIP IN LOW-INCOME HOUSING IN EGYPT

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Abstract

This study aims to adopt public private partnership (PPP) in low-income housing in Egypt, one of the possible approaches to meet government targets to afford housing units for low-income groups, and decrease the government spending for housing. In 2050, the population of Egypt will be increased by more than 50 million people, increasing pressure on low-income housing sector whom suffers from shortage, and that's generating the research problem. One of the approaches to solve this problem is a partnership between public and private entities to increase the number of housing units and meet the demand. However, this approach needs in depth study to ensure the best practice and success of PPP. But before adopting, critical success factors (CSFs) of this partnership should be studied, analyzed and enhanced. The literature review has been analyzed to extract the CSFs and common risks of PPP in housing sector. From the extracted literature, qualitative and quantitative questionnaires have been formed to rank and evaluate the existence of the CSFs within the Egyptian context. From 63 responders to the first questionnaire, CSFs have been rated and examined for existence. The top-rated CSFs within Egyptian context for successful PPP in housing were "political support and stability", "appropriate risk allocation", "strong private partner". Second questionnaire have been formed to improve and enhance policies for PPP in housing as following "Dedicate a low for PPP LIH", "government guarantee for debit paying ability", "Technical feasibility study to be done from both partners". Findings in this paper could guide public and private stakeholders to win-win partnerships in LIH. PPP in Egypt has fair conditions. Consequently, policies and practices of PPP need more development to ensure availability and sustainability in PPP housing projects.

1. INTRODUCTION

Financing infrastructure projects is one of the challenging milestones for housing in Egypt and worldwide (Abd-Elkawy, 2016). And Egypt faces a growing rate of population, that government only cannot afford housing units for all housing sectors .Hence, the private sector major contribution on affording houses for high and middle high-income strata, leaving the low and low middle-income housing due to the gap between the expected prices and real purchase capability for the low-income sector (Sims & Abdel-Fattah, 2020).And this, has led to informal housing to grow and build upon agricultural land (Sims & Abdel-Fattah, 2020). But in June 2020, Egypt has announced stopping residential buildings inside and outside towns, and start the new era of organizing the housing sector(Sims & Abdel-Fattah, 2020). Recently, government started to partner with private entities in housing projects, especially in the new administrative capital and new cities, by making easier payment options and project shares to boost the new administrative capital housing (Ali, 2021). Infrastructure services and housing were the responsibility of the public sector in most countries for many years, through full government funding, besides the small role of the private sector of services, but not funding (Moskalyk, 2011). Governments began to partner with the private entities due to a shortage of sufficient funding, not only to build, but also to fund different models of PPP (Moskalyk, 2011).

Increasing the private sector share to gross domestic product (GDP) to 75% instead of 60% is one of Egypt Vision 2030 targets. The housing sector represents 16% of GDP in Egypt (Summary, 2017). PPP considered one of the key roles expanding the private sector share to GDP, especially in housing sector (Moskalyk, 2011), to decrease the gap of housing problem and boost Egypt economy. Successful PPP depends on CSFs differs between countries, thus, there is a need to analyze factors that make the partnership successful (Osei-Kyei & Chan, 2015). Although CSFs for PPP has been previously studied, there is a need to restudy CSFs for the adopting. PPP experience cannot be copied, there are urgent need for in-depth study country condition before PPP adopting (Alteneiji et al., 2020a). Many countries have a different set of objectives, but adopted PPP in housing, to cost reduction, better value for money, appropriate risk allocation and encouraging innovation (Abdul-Aziz & Jahn Kassim, 2011).CSFs for PPP depends on each country context (Kwofie et al., 2016). PPP in low-income housing has been used in developed countries such as U.S.A, U.K, Ireland, and Australia. The successful projects were a joint venture between public and private parties to finance, operate, own and share risks appropriately (Sims & Abdel-Fattah, 2020).(PPP) approach can help enhance conditions for sustainable housing and urban development for countries at all levels of economic development (Moskalyk, 2011).

The research problem comes from gab between expecting demand and affordable housing units for LIH. High rates of population growth, it's expected that Egypt will need to afford at least 30 million housing units (Sims & Abdel-Fattah, 2020). The research aim is to adopt PPP in LIH to reduce the gap between the expected demand and available housing units. Also, to develop a framework and investigating CSFs for PPP in LIH and reach optimized win-win partnerships for private and public entities.

2. LITERATURE REVIEW

The review of literature starts by reviewing the background of the housing problem and the current housing situation in Egypt. Then, the PPP in Housing CSFs and Risks described. To identify why some PPP projects are successful in some countries, while other projects are unsuccessful with the same project specifications? .To answer this question, literature is scanned with a scoping review approach.

2.1. Housing problem and population growth in Egypt

The housing problem in Egypt expands with population growth, Egypt population is expected to reach 160 million inhabitants by 2050 (Report, 2021). The housing issue is considered one of the most pressing issues facing Egypt's development programs. (Sims & Abdel-Fattah, 2020). With a lack of adequate housing in rural areas and informal housing, Egypt needs to build new communities that absorbed both expected population growth and urban expansion. Egypt already started to build new communities and started the social housing program since 2014 that build about 500 thousand housing units, But all of these efforts are not enough for expected demand, especially for low-income community (Sims & Abdel-Fattah, 2020). The total number of housing units build by all sectors in the last 3 years in around 805 thousand units including the social housing project , while the demand units in the same period is around

1.5 million units. The current housing gap is around 2.5 million housing units, and annually Egypt needs around 500,000 housing units (Sims & Abdel-Fattah, 2020). New 6 cities currently built and 32 existing ones have been expanded to absorb the upcoming population (Report, 2021). Another challenge faces housing in Egypt, the imbalance in the production of housing units between different governors, where construction carried according to land availability. Egypt with the cooperation of UN habitat has launched Egypt housing strategy that aims to play an effective role in integrating the vision of the housing sector with the various development sectors (Sims & Abdel-Fattah, 2020). Egypt central bank has launched initiative with low interest rates up to 3% decreased, for up to 30 years, directed to LIH, this initiative could help of reforming PPP in LIH (Central-Bank-of-Egypt-Initiative-Towards-Affordabl @ English.Ahram.Org.Eg, n.d.). Affordable housing units in Egypt tend to be luxurious service more than basic human need, and this is the main factor driven the informal housing and irregular building.

2.2. Public Private Partnership Approach

The PPP procurement method has been widely used, with different approaches and contractual details vary between countries, and depend on the purpose of each project (Kwofie et al., 2016). World-Band defines PPP as “a long-term contract between a private party and a government agency, for providing a public asset or service, in which the party bears significant risk and management responsibility (Ong, 2003).

The private sector's participation in the funding, execution, and administration of infrastructure projects, services, and public utilities is typically minimal in terms of PPPs, increasing the burden on the public sector. Despite this, PPPs is projected to play a bigger role in health, education, and public utilities spending in the future, easing the strain on the state budget (Report, 2021) .The right PPP model could lead to project success and avoid the extra cost of PPP project (Moskalyk, 2011).Selecting the right type of PPP for specific projects is the government role before project announcement and after negotiations with the private partner (PPIAF, 2012). PPPs are becoming more important every day, and governments all over the globe are turning to them as a financing alternative for large-scale investments in affordable housing and other essential infrastructure assets. (Moskalyk, 2011). The PPP in housing has been in developing to enhance the best practice of partnership in housing and other infrastructure projects. But knowledge is still limited, especially in PPP for LIH in developing countries (Kwofie et al., 2016). Reaching the optimized successful model need more research and effort. However, governments worldwide are increasingly seeking partnerships with the private sector to fund basic infrastructure and affordable housing projects (Abdul-Aziz & Jahn Kassim, 2011). PPP in housing is an extension for PPP in infrastructure and reflects the importance and interest of the world’s governments to make this partnership successful. But PPP in housing has been studied and implemented in many countries around the globe, including Egypt (Abd-Elkawy, 2016). The main driven factor for implementing and studying PPP in housing is the immediate and huge demand for LIH in Egypt (Report, 2021). Housing PPP has been adopted in many countries, including the United Kingdom, Canada, Malaysia and many other countries with different project formats and goals. But the experience to

provide LIH has been largely failed because housing units were not affordable for target groups, and the quantities failed to meet the demanded units (Ong, 2003).

2.2.1. Public Private Partnership in Egypt

Egypt has opened Private Organization Central Unit in 2006 beneath Service of back obligation, to screen, contract and oversee PPP projects (Kamel et al., 2017). PPP in Egypt has faced many development steps, among the different efforts made by the Egyptian government in arrange to improve the PPP ventures in Egypt. Egyptian launched law No. 67 for 2010, which was established and dedicated to PPP projects. This law defines a “PPP Contract” as “A contract concluded between the authoritative specialist and venture company beneath which the venture company is endowed to embrace all or a few of the taking after exercises: financing, developing, preparing and working framework ventures and open utilities and making their administrations accessible or financing and restoring such utilities” (Abd-Elkawy, 2016). Also, some terms of this law have been edited by 2019 to faster PPP contacting (Report, 2021).

2.3. Critical success factors for affordable housing in PPP Projects.

Research into the CSFs for PPP began in 90s; the concept of CSFs was developed by the school of management at the Massachusetts Institute of Technology. CSFs defined as those few areas of activity in which positive results are essential for a manager to achieve personal or organizational success (Kavishe& Chileshe, 2019). Since then, studies have been published in the field of CSFs as a guide for successful collaboration in many areas, including housing, but CSFs varies from country to country (Alteneiji et al., 2020a) . Although the PPP strategy is applied in housing projects in both cases considered in one study, the comparative importance of CSFs for Nigeria differs from that of Malaysia due to the difference in background characteristics scene of the two countries (Muhammad & Johar, 2019). Thus, every country has to study CSFs for projects before any PPP housing project especially in LIH (Alteneiji et al., 2020a). CSFs are highly contextual and every type of PPP may have different CSFs (Kwofie et al., 2016). To ensure the success of the PPP housing project, CSFs must be identified and analyzed (Abdul-Aziz & Jahn Kassim, 2011). For producing sustainable social PPP hosing in Egypt Amal et al.(Abd-Elkawy, 2016) Concluded that: selection of suitable PPP type – improving PPP skills - development of legal framework among most important Principles before adopting PPP Projects. M.Zauuyn (Muhammad & Johar, 2019) concluded CSFs such as political stability, sound government policy, and strong macroeconomic conditions attracted strong private partners in the country and vise-versa for Nigeria. K.Elteneiji Et Al (Alteneiji et al., 2020a), in their review for CSF for PPP in affordable housing concluded most four mentioned CSFs were 1-political support and stability, 2-trust and openness, 3-an efficient legal framework, and 4-appropriate risk allocation and sharing. CSFs for PPP in affordable housing have been studied in many studies and countries; Table 1 concludes most mentioned CSFs from resources.

Appropriate risk sharing and risk allocation has been top-ranked, as a critical factor in many researches (Alteneiji et al., 2020a).It was top-ranked in Nigeria (Muhammad & Johar, 2019), Malaysia, and U.K (Alteneiji et al., 2020a). To reduce overall cost of PPP, risks must be

addressed to appropriate partners to be efficiently managed (Moskalyk, 2011). One of the main addressed failure factors for PPP is poor risk management, thus risk sharing is one of peculiar features of PPP, to maximize efficiency of partnership (Alteneiji et al., 2020a). Previous studies on roles of public and private partners have been published and the common risks as ranked from authors opinion are as following; Political, Technical, Policy and Legislative, Devaluation of Currency, Procurement, Design, Construction, Operation, Permit and Approval, Financing, Maintenance and Operational,(Moskalyk, 2011)

	Common critical success factors	(Kwofie et al., 2016)	(Kamel et al., 2017)	(Muhammad & Johar, 2019)	(Ismail, 2013)	(Osei-Kyei & Chan, 2015)	(Alteneiji et al., 2020b)	(Kavishe & Chileshe, 2019)	(Osei-Kyei et al., 2017)
1	Political support and stability	*	*	*	*	*	*	*	*
2	Appropriate risk allocation and risk-sharing	*	*	*	*	*	*	*	*
3	Project technical feasibility			*		*	*		*
4	Careful selection of the right partner			*		*	*		*
5	Stable macro-economic conditions	*	*	*	*	*	*	*	*
6	Competitive and transparent procurement process	*	*	*		*	*	*	*
7	strong private developer		*	*	*	*	*		
8	Trust and openness	*	*		*	*			*
9	Well-developed local stock and capital markets	*	*	*		*	*	*	*
10	Planning and design with approval			*		*			
11	Commitment of public and private sectors	*		*	*		*		*
12	continuous project monitoring and control	*			*		*		
13	Favorable and efficient legal framework	*	*	*	*		*	*	*
14	Government guaranties	*	*	*	*	*	*	*	*
15	Good governance	*	*	*	*				*
16	Social support	*	*		*	*			*
17	Demand for project/expected debt-paying ability	*	*	*	*	*	*		*
18	Multi-benefit stakeholders – objectives				*	*	*		
19	Available financial market				*	*	*	*	*
20	Involvement of organized public agency	*	*				*		*

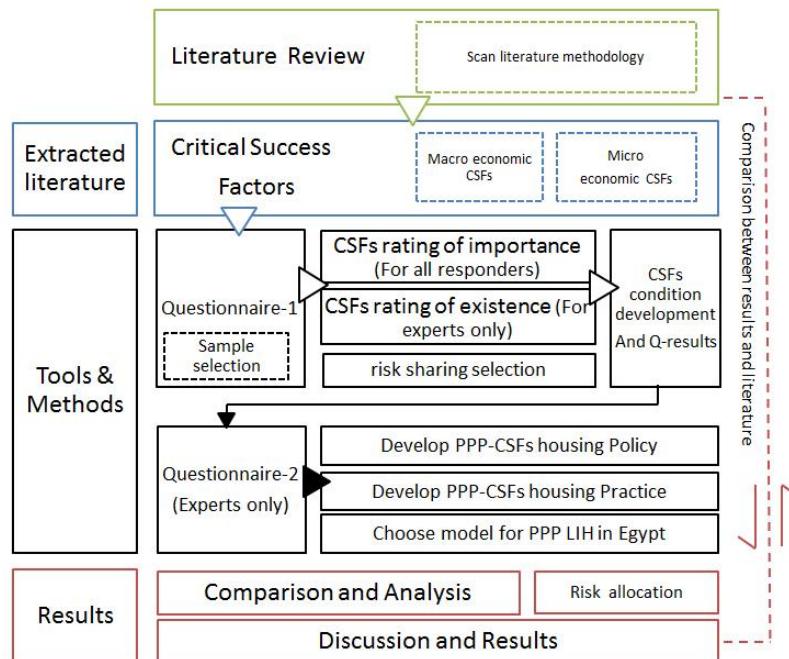
3. METHODS

The research adopts PPP in LIH and identifies the CSFs for PPP by using qualitative approach, to be a guide for public and private entities to reach a win-win partnership before any PPP agreement, especially in LIH. Research focuses on rating and evaluating the existence of CSFs in the Egyptian context, to identify the gap and study the current situation before adopting PPP in LIH. Figure 1 describes the research flow from the point of collecting data to the final analysis.

As shown in figure 1, research starts with literature review after defining literature scan methodology with scoping review. Then extracted literature used to identify the CSFs whom classified into Macro-economic Factors (MAFs) and Micro-economic Factors (MIFs), also shared risks have been extracted to form the first questionnaire. Questionnaire results and analysis parts contain rating of importance for CSFs, then rating of existence to same factors. And comparison between importance and existence to the CSFs to identify the gab and criticism the readability of Egyptian market to adopt PPP. Then analysis of first questionnaire forms the second questionnaire to develop and enhance CSFs conditions for policy and practice, also model of partnership have been tested. A comparison has been done between

findings of this research and literature review to test and validate research outputs.

Figure1: Methods and tools of research. Author, 2021



3.1 Methods and procedures

Two questionnaires have been done to reach this study aim. First questionnaire for 63 public and private stakeholders has been done to rank the CSFs and evaluate the current Egyptian market for this kind of partnership, while the second one extracted from first one reflections and analysis. Literature extracted CSFs have been used to be the main body of the first questionnaire. The 1stquestionnaire was designed to rate CSFs and examine the Egyptian context from experts' point of view for adopting PPP LIH projects. Participants asked of their major, years of experience, relative of PPP, and housing, then asked about the importance of each CSF as extracted from literature, then about how are these factors existing or not in the Egyptian context. The final part of the questionnaire was about risk allocation. Then, the questionnaire responds has been analyzed using mean and the standard deviation approach by using Likert scale. Rating of CSFs ranged from the "very high" factor =5 points, to "very low"=1 point, as a point score. From responds, CSFs could be ranked from the most important to the least important, and then final data have been analyzed using Microsoft-Excel software. From responds and mean, CSFs could be ranked from the most important to the least important. And the same factors have been analyzed of existence as follows, very strong =5 points, very weak =1 point as score. A comparison has been done between each factor's importance and existence. The weak factors' existence could be insight from comparison between factors existence and importance. Respondents also have chosen shared risks in LIH to make the partnership successful.

From first questionnaire responds and analysis, second questionnaire has been formed to enhance CSFs conditions for PPP policy and practice, also PPP LIH model have been chosen from responders as it was top-rated MIF for appropriate risk allocation and risk sharing.

By using purposive sampling, first questionnaire targeted the experts in housing and real-estate for private sector, on the other hand PPP unit, and ministry of housing and new community's authority for public sector. Numbers of experienced PPP calipers in Egypt is small, but the questionnaire is directed to experts in the field to who can help reach assessment related to the study and give a significant impact within their experience. The experts have received the questionnaire by hand with an official letter from Cairo University to authorize the study and encourage experts to receive the questionnaire. Also, authors have attended many conferences and exhibitions to meet large numbers of the stratified sample, especially from private entities. 75 responders have received the questionnaire by hand, 68 responds were returned, while the valid responses were 63. The questionnaire was designed with 13 questions with 4 parts, part 1 for personal information's. Part 2 was directed to all responders to rate CSFs of importance and existence for MAFs. Part 3 was directed to only experience PPP experts, to rate the existence of MIFs of existence based on their previous experience in the field. Part 4 asks respondents of their rating to share risks. Second questionnaire targets only experienced PPP experts. The questionnaire has sent by E-Mail with previous study results to experts. Only 17 responds have been returned the 2nd questionnaire.

Table 2 shows the number of participants of private and public entities, their years of experience, and their relation to PPP, the percentage of responds from public and private sector shows that 57% of responds from private sector, while 43% of public sector, the relevance to PPP show that around 30% of responds only have direct experience with PPP and 45% familiar with PPP, 25% is not familiar with PPP and have no experience. The relatively high percentage of PPP involvement and familiarity is due to the governmental approach into participating with the private sector in housing and infrastructure projects, especially in New Administrative Capital and New-Alamain, also reflect the government effort into participating with the private sector in public infrastructure.

Table 2: Respondents' years of experience and relevance of PPP

Years of Experience	0-10 Years	10-20 Years	More 20 Years	Total	Percentage
Public sector	12	12	3	27	43%
Private Sector	17	11	8	36	57%
Total	30	23	11	63	100%
Percentage	47%	36%	17%	-	-
Experience with PPP	4	8	7	19	30%
Familiar with PPP	17	8	3	28	45%
Not Familiar with PPP	8	7	1	16	25%

Table 2 percentages and years of experience reflect sample size specifications and familiarity with PPP between experts of construction and infrastructure fields. Percentage between public and private entities could give a fair weight of results between parties. Also, share of percentage between "years of experience" represents that number of experts between sample elements is fair but not strong, this due to the large number of graduates recently. The 1st questionnaire

targets expects not only in PPP, but also in construction and real-estate fields. as there are expected partners in case of PPP applying, so their reflections is important to, to reach successful partnership.

4. RESULTS AND DISCUSSION

From questionnaire responses and literature review, the study found that the absence of existence of some critical success factors (CSFs) will lead to failure of public private partnership (PPP) projects. The study also developed suggested actions in policy and practice levels to develop CSFs conditions. Within the Egyptian context, the top-rated CSFs were; 1-F1 "Political support and stability", 2-F5 "Stable macro-economic condition" for Macro-economic CSFs, 1-F2 "Appropriate risk allocation" and 2-F3 "Project technical feasibility" for micro-economic CSF conditions. The results of CSFs rating align with literature in many studies but with differences in weight of importance. The gap between the mean of existence and importance to CSFs could be identified by comparison of responses mean results as shown in figure 2. The weak CSFs of existence and need enhancement for MAF are 1-F9 "Develop local markets" 2-F13 "Favorable legal framework", 2-F8 "trust and openness" 4-F20 "available financial market". For MIFs, 1-F2 "appropriate risk allocation", 2-F16 "competitive procurement process" were the weakest factors of existence and need for development; other CSFs are either at a good existence rate or not important to be considered in the development process.

CSFs condition enhancement were set as an independent variable, due to the literature position of CSFs in previous studies, while the dependent variable is PPP projects success within Egyptian context. These variables have set in same form but in other counties within different CSFs as literature mentioned.

The top suggested policy actions for CSFs are: 1- Government guarantee debit paying for LIH beneficiaries, 2 -Dedicate a low for PPP LIH. 3- Develop the local financial markets. Top suggested practice actions for PPP adopting were 1- Agreed financial model for debit paying ability for LIH, 2- Technical feasibility study to be done and agreed from both partners 3-Strong experienced PPP partners recommended more than no PPP experience.

From first questionnaire responds, table 3 & 4 show the relative importance of each CSF analysis; tables show responses of each relevant weight of responses to the total responds, CSFs could be rated from the most important to the least important. In the same questionnaire, CSFs divided into macro-economic factors (MAFs) and micro-economic factors (MIFs), that the MAF factors are the factors did not depend on the project and couldn't differ from project to another and this factor mainly related to macro-economic conditions. While MIF are the factors that depend on each project, Part of the questionnaire was about rating of the current MAFs. Another part of MIF was rated only with the experienced PPP; depends on their previous experience with PPP and could give an accurate rating of existence for these factors. After the rating and the division of CSFs, the existence of these factors in the Egyptian housing market could be shown in table 4, rating of the Egyptian market for both MAFs and MIFs to identify the gap in the Egyptian market to enhance the possibilities of PPP success.

Table 3: CSF rating of importance in the Egyptian context

No.	Critical Success Factors	Very low (1)	Low (2)	Mode (3)	high (4)	very high (5)	Mean Ø	S.D ±
F1	Political support and stability	1	4	15	22	21	3.92	1.05
F2	Appropriate risk allocation	0	2	21	23	17	3.87	0.85
F3	Project identification and technical feasibility	3	18	18	13	11	3.17	1.17
F4	Careful selection of the right partner	2	16	14	18	13	3.38	1.17
F5	Stable and sound macro-economic conditions	0	9	23	20	11	3.52	0.95
F6	Competitive procurement process	0	10	18	21	14	3.62	1.01
F7	strong and good private developer	0	6	15	23	19	3.87	0.96
F8	Trust and openness	2	7	18	27	9	3.54	0.98
F9	Well-developed local stock and capital markets	0	4	14	32	13	3.86	0.82
F10	Planning and design with approval	8	12	17	13	13	3.17	1.31
F11	Commitment of public and private sectors	0	2	26	14	21	3.86	0.93
F12	continuous project monitoring and control	6	9	35	9	4	2.94	0.97
F13	Favorable and efficient legal framework	0	6	23	18	16	3.70	0.96
F14	Government guaranties	0	11	20	18	14	3.56	1.26
F15	Good governance	4	15	31	11	2	2.87	0.89
F16	Social support	8	14	19	16	6	2.97	1.18
F17	Demand for project/expected debt-paying ability	0	7	26	18	12	3.56	0.91
F18	Multi-benefit stalk-holders – objectives	4	9	36	8	6	3.05	0.96
F19	Available financial market	0	16	28	13	6	3.14	0.91
F20	Involvement of organized public agency	0	8	25	18	12	3.54	0.95

Table 4: CSF rating of existence in the Egyptian context

	Macro-economic Factors (MAFs)	Very Weak (1)	Weak (2)	Mod (3)	Strong (4)	very Strong (5)	Mean Ø	S.D ±
F1	Political support and stability	0	8	16	21	18	3.78	1.01
F5	Stable macro-economic conditions	0	12	27	18	6	3.29	0.89
F8	Trust and openness	7	7	31	15	3	3.00	1.00
F9	Well-developed local stock markets	10	13	25	11	4	2.78	1.12
F13	Favorable and efficient legal framework	8	12	21	15	7	3.02	1.15
F14	Government guaranties	0	5	24	24	10	3.62	0.85
F15	Good governance	4	15	31	11	2	2.87	0.89
F20	Available financial market	12	19	21	9	2	2.52	1.06
F21	Involvement of organized public agency	3	10	25	15	10	3.30	1.07
	Micro -economic factors (MIFs)							
F2	Appropriate risk allocation	1	2	8	6	2	3.32	1.00
F3	Project identification and technical feasibility	0	2	9	6	2	3.42	0.84
F4	Careful selection of the right partner	0	5	9	4	1	3.05	0.85
F6	Competitive procurement process	2	5	8	3	1	2.79	0.96
F7	strong and good private consortium	0	1	4	11	3	3.84	0.76
F10	Planning and design with approval	0	0	6	8	5	3.95	0.78
F11	Commitment of public and private sectors	0	2	9	4	4	3.53	0.96
F12	Consistent project monitoring and control	3	7	4	5	0	2.58	1.07
F16	Social support	8	8	3	0	0	1.74	0.73
F17	Demand for project/expected debt-paying ability	0	2	7	7	3	3.58	0.90
F19	Multi-benefit stalk-holders – objectives	4	5	3	6	1	2.74	1.28

From CSF analysis of importance, as shown in table 3, it could be identified that F2 “political support and stability” is the most important critical factor among all factors and reflects the importance of political support, especially in developing countries. This factor was top-rated in literature in previous studies and top-rated in developing countries (Osei-Kyei & Chan, 2015). F5 “Stable macro-economic conditions” was 2nd rated MAFs and this was one top-rated CSFs in many researches [10,16]. F7 “Strong private developer” is also rated 3rd most important CSF, this factor reflects the importance of capability of the private partner in making this partnership successful. This factor is also among the top-rated from literature studies

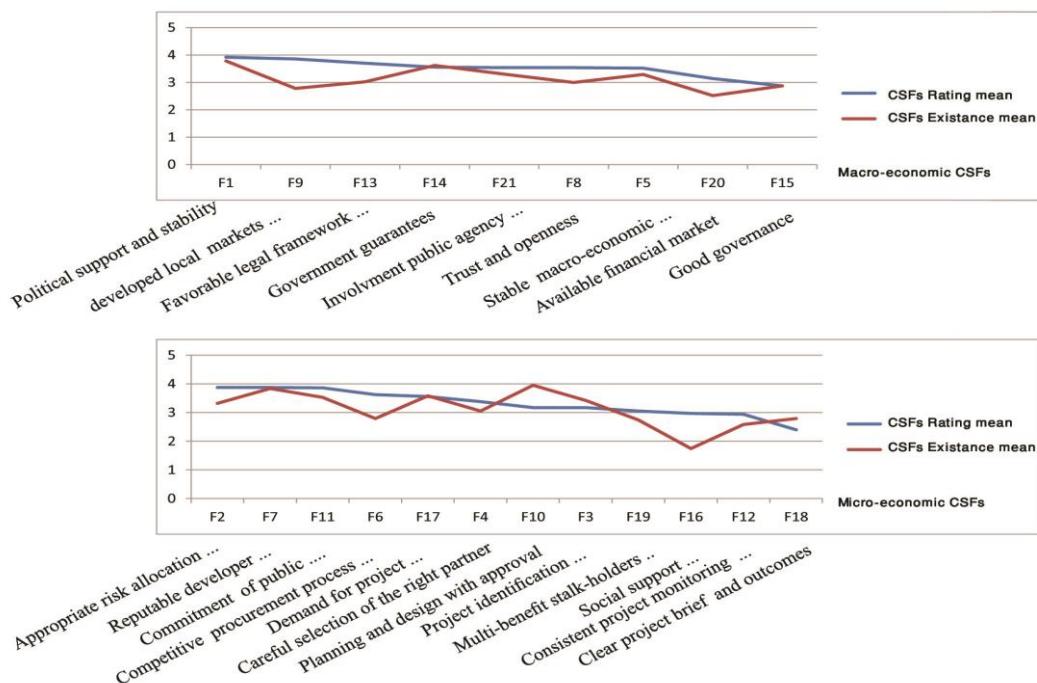
[10,18].

Rating of CSFs only, could not be a significant impact on research unless the CSFs examined existence to identify gap of current top-rated CSFs conditions within Egyptian context. That's why CSFs has been rated of importance and existence in the same questionnaire. From table 4 it could be identified that the rating of existence to CSFs in Egyptian market is set for MAFs where political support and stability are the most important for the Egyptian market and it also have good existence. While for MIFs, "appropriate risk allocation and risk sharing" is the highest ranked factor. Figure 2 shows the mean of responses for the importance and existence of factors to identify the gab in the market. For MIFs, results of questionnaire is aligned with literature for top-rated factor "Appropriate risk allocation and risk sharing" was identified by most previous PPP and CSF publications and relevant to be most rated MIF of CSFs due to the high risk of appropriate risks haring depends on each party skills and assets to be part of the partnership (Osei-Kyei & Chan, 2015).

From figure 2, MAF are those factors related to the Egyptian market and government are the main player of these factors and could have the potential for developing them, it could be identified the gap between importance CSFs and existence for the same factors, F1,F14,F21,F11,F15 is in good condition for PPP, but F9. Developed local markets need development, also the "favorable and legal framework" need development. F15"good governance" is the least important for the MAE but and the existence bar shows low importance. This factor especially is opposite of literature rating for good governance. In this point particularly researches on developed countries put this factor among top-rated CSFs while "political support and stability" is not top-rated in the same research. Vise-verse for developing countries researches whom put political support as most important CSFs and "good governance" is not important. These factors are the responsibility of the government only and the government has to enhance the policies and prepare markets for PPP. But for the MIFs, F2 "appropriate risk allocation" was the most important, but it wasn't existence as importance so both public and private partners have to give more time in study and negotiations in this point to reach the best practice of risk sharing. F11, F6 Commitment of public and private sector, and competitive procurement process need development more development.

Risk allocation and risk sharing was the most critical factor in MIF, thus many studies have studied and formed the risk sharing, risks have been extracted from literature, only experienced with PPP whom response to this part .Table 5 show risk allocation and risk sharing responses.

Figure 2: CSFs rating and existence mean



From table 5, It could be defined the risk sharing optimized for PPP Low and middle-income housing due to the shared risks and to maximize profitability for each partner. From table 5 private roles could be identified as 1 -provide land, 2-provides power and access roads, 3-supervision and monitor of the project, 4-set standers to ensure the compliance of the project, 5-provide legal and economic policy framework, 6-provide a job opportunity guarantee groups debit paying for low-income groups. Defining every partner role in every stage of PPP housing could be extracted from literature to reach the suggested optimized role and risk sharing for public and private partners within Egyptian context. Egypt government owns the land, could connect roads, services and population, while the private partner own capital, skills, calibers and experience. LIH suffers from a lack of adequate units for the low-income groups, while sharing experience with community and from previous studies refer to the need for flexible design and transportation for the new LIH. The results of this paper show good potential for PPP adoption of low-income housing in Egypt by focusing on development of CSF conditions as well as developing a sustainable and profitable income for low-income earners.

Table 5: Responses for risk sharing and risk allocation for LIH-PPP

	Risk	Public Role	Shared	Private Role	Remark (Author)
1	Provides Land	17	2	0	Public
2	Provides Access road and power	12	3	4	Public
3	Sets the project target	7	8	4	Shared
4	Undertake design and construction of housing units	4	9	10	Private
5	Supervision and monitor Project	16	3	0	Public
6	Funding of the construction work of housing projects	2	8	9	Private
7	Set standers to ensure compliance	12	5	3	Public
8	Advertising of the projects	1	16	2	Shared
9	Provide legal and economic policy framework	19	0	0	Public
10	Operation of project after construction	0	7	12	Private
12	Creation awareness on the project and marketing	7	4	8	Shared
13	Link project with Transportation	8	11	7	Shared

The analysis showed that for the MAFs that F9 the “developed local market”, F13 “favorable and efficient legal framework, F8 “trust and openness”, F5 “Stable macro-economic condition”, and F20 “available financial market”, these factors still need enhancement for the MAFs within the Egyptian context. For MIF, F2 “appropriate risk sharing and risk allocation”, F11 “commitment and responsibility of public and private” are the most important factors and in good condition.

“Risk allocation and risk sharing” were top-ranked MIF for PPP and it was selected to identify shared risks with such PPP projects, the outcomes from the questionnaire show interest of maximizing profitability of public and private sector assets and targets. The government owns the land and the policy while private sector own skill, labor and money. The risk allocation from expert opinion, the risks selected for public sector were 1-provides lands, 2-provide access roads and power, 3-supervise and monitoring the project, 4-set standards to ensure compliance, 5-Provide legal and economic policy framework . Risks for the private sector were 1-comply with building and planning, 2-Funding of the construction work of housing projects, 3-operation of project after construction, 4-own service and retail area. While the shared risks were 1-sets the project target, 2-advertising of the projects, 3-create awareness of the project and marketing of completed housing units, Link project with Transportation. Linking housing unit with job opportunity was one of innovative risks must be held by the public sector, to ensure capital money payback for the private sector. This guaranty could be an agricultural area for new Egyptian delta for instance, or maybe for industrial areas, or as development new cities and selection of project could be by public partner. The transportation linkage is a shared risk between public and private to ensure access to public and private transportation.

In second questionnaire PPP experts asked about their opinion of PPP model of housing. Figure 1 shows the relation and risks for both public and private entities that could be applied in PPP-LIH, model 1&2 selected due to the similarity in previous implementation in India and Brazil for the same targeted housing category (“Public-Private Partnerships Invest. Deliv. Afford.

Hous. Emerg. Mark. Econ.,” 2020), so the development could be carried and tested for this kind of PPP. This model is the form of survey for shared risks and revenues part, to test this model applicability and the new catalyst strength to PPP project. The chosen of this model is depending on the applicability and the success of many countries. This model has been used in Behan swear – India , and Brazil (“Public-Private Partnerships Invest. Deliv. Afford. Hous. Emerg. Mark. Econ.,” 2020). Model 1 directed only to LIH, while model 2 directed to low and middle income housing by sharing housing units with private sector. From table 6, results of second questionnaire refer to the top-ranked suggested policies of developing CSFs conditions within Egyptian context. For policy phase while policy could be developed before applying of PPP agreement. Scales of policy and practice are extracted from first questionnaire reflections and responds. The significant contribution into enhancing PPP CSFs conditions in the scales of policy: 1- dedicating a low for PPP LIH 2- developing economical catalysts for private partners could attract more private partners to PPP LIH, 3-government guarantee debit paying ability for LIH earners, For PPP practice enhancement suggest actions are as following: 1- Financing model has to be agreed from both partners for debit paying ability LIH. 2- Planning and design of project to be approved within shared risks and benefits, 3- Technical feasibility study to be done from both partners. Also models of application applied in the questionnaire

Results of the questionnaire analysis could give an insight into the best practice of adopting PPP in Egyptian context; especially for housing due to the relativity of sample size and study overall to housing sector. But some challenging factors and studies should be done and need enhancement before PPP contract. Appropriate risk sharing and risk allocation, negotiates. Finally, the research question could be answered by why some PPP projects are successful while others not, availability of CSFs in PPP projects and these factors are existed in good condition is a critical key for successful PPP projects even if the CSFs are not studied, but the critical factor existed. Hence, to reach successful PPP contract, CSFs should be existed and to identify gaps in these factors, it should be considered and studied before PPP agreement. Also development of PPP CSFs for LIH could ensure PPP success after this study within Egyptian context. Public and private partners have big roles to be played for reaching successful PPP housing projects, but government has the big role of establishing policy and conditions for successful PPP LIH.

Table 6: Responses for suggested actions to enhance CSFs conditions for LIH-PPP

Policy	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean Ø
Dedicate a law PPP low-income housing (LIH) in Egypt	0	2	4	14	6	3.9
Develop economical catalysts for PPP LIH	1	3	6	11	5	3.6
Government guarantee for debit paying	0	0	3	12	11	4.3
Develop local financial market	2	1	8	9	6	3.6
Announce clear PPP agreement steps within time frame dedicated for private partners with clearance of procurement process	0	4	9	9	4	3.5
Governance of PPP	0	4	10	7	5	3.7
Practice						
Risk allocation negotiations before PPP model selection from both partners	0	0	6	11	9	4.1
Technical feasibility study to be done from both partners	0	0	4	12	10	4.2
Strong experienced PPP partners recommended more than no PPP experience	0	2	5	7	12	4.1
Planning and design of project to be approved within shared risks and benefits	0	3	4	9	10	4.2
Monitoring of PPP project from government	3	3	8	8	4	3.2
Financing model has to be agreed from both partners for debit paying ability LIH.	0	0	3	11	12	4.3
Construction responsibilities to be done within specified agreed time frame.	0	2	11	9	4	3.6

5. CONCLUSION

The study used scoping review approach to scan literature and extract common critical success factors (CSFs). The extracted CSFs have been used to form the first questionnaires, which designed to rate CSFs of importance and existence rating within the Egyptian context. The study found that the most important critical success factors within Egyptian context as following are, 1-political support and stability, 2-appropriate risk sharing, 3-Reputable developer/strong. The rating of existence to the macro-economic CSFs showed good condition for all factors except 1-“developed local markets” 2-favorable legal framework” 3-trust and openness” 4-available financial market” .For micro-economic factors existence analysis showed fair condition for most factors but the weak factors are” 1- “competitive procurement”

2- "Social support". The previous CSFs are the weakest factors of existence among the important factors. Hence, conditions and policies of PPP in Egypt need enhancement in weak factors area to ensure the success in case of PPP low-income housing in Egypt.

The second questionnaire has been formed from first questionnaire responses. PPP experts have been asked about suggested policies to develop CSFs conditions within Egyptian context. Top ranked suggestions for PPP policy and practices were: : 1- dedicating a low for PPP LIH 2-developing economical catalysts for private partners, 3-government guarantee debit paying ability for LIH earners, 4- Technical feasibility study to be done from both partners and agreed.

Research scope targets to evaluate, examine and enhance CSFs for PPP LIH within Egyptian context from expert point of view and their experience. Limitations of literature review are not just for developing countries but for all CSFs in PPP especially in housing. The research sample size contains experts in PPP, housing, real-estate and construction due to relativity of these majors and research scope for first questionnaire, but PPP experts only for second questionnaire.

For future research it's recommended to focus on detailed risk allocation models, these models could be studied with a focus on each partner's role in every stage to ensure PPP success. Also, CSFs for every stage could be studied separately with case studies for one of the implemented housing projects, especially in housing the new cities. Another futuristic approach of studies is a study of BIM in PPP especially in mega housing projects.

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