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COMPARATIVE STUDY OF GOVERNMENTS' REASONS/MOTIVATIONS FOR ADOPTING PUBLIC-PRIVATE PARTNERSHIP POLICY IN DEVELOPING AND DEVELOPED ECONOMIES/COUNTRIES

Robert OSEI-KYEI[1,*], Albert P. C. CHAN[1]

[1]*Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Hong Kong, China*

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Abstract. Over the last couple of decades, governments in developing and developed economies/countries have shown interest in the public-private partnership (PPP) policy. Different governments have different reasons for adopting the PPP concept. This paper aims to investigate the differences and similarities on the reasons for implementing PPP in developing and developed economies/countries, represented by Ghana and Hong Kong. An empirical questionnaire survey was conducted with relevant experienced practitioners in both jurisdictions. One hundred and three completed questionnaires were returned for analysis. The results from the non-parametric test show five reasons with significant differences. Reasons related to the economic and social benefits of PPP are ranked higher in Ghana, whereas efficiency and quality service related reasons are ranked higher in Hong Kong. Further, two reasons for adopting PPP emerged as very important in both jurisdictions; these include: "promotes quick delivery of public infrastructure projects" and "allows for shared risks". The outputs of this study contribute to the international best practice framework for PPP. International private investors would be informed of the expectations of governments when engaging in PPP arrangement particularly in Asia and Africa.

Keywords: public-private partnership, reasons for PPP, developing economies, developed economies, Ghana, Hong Kong.

Introduction

The public-private partnership (PPP) policy has been practiced for some time now in both developing and developed countries/economies (Zhang, 2005; Osborne, 2002; Osei-Kyei & Chan, 2015a). It has become the preferred procurement option by many governments to provide public infrastructure and services (Chou & Pramudawardhani, 2015; Hodge, Greve, & Boardman, 2010; Akintoye, Beck, & Hardcastle, 2008). Essentially, PPP offers governments the opportunity to develop 'value for money' and modernized public infrastructure compared to the traditional bid-build system (Almarri & Bassam, 2017; A. P. Chan, Lam, D. W. Chan, Cheung, & Ke, 2009; Cheung, Chan, & Kajewski, 2009a).

However, despite the growing interest in the PPP concept from governments globally, there is little information on the similarities and differences of motivations/reasons for implementing the PPP policy by governments in developing and developed economies/countries (Osei-Kyei, Dansoh, & Ofori–Kuragu, 2014; Ismail, 2013). Considering the fact that the PPP concept has now become an international practice; where investors, consultants and public officials are engaged irrespective of their cultural background and geographical differences (Osei-Kyei & Chan, 2017a). There is therefore the need to understand the differences and similarities on the reasons why governments in developing and developed economies/countries are implementing this procurement method. This is crucial at this time because knowledge on the differences and similarities of reasons for adopting PPP in developing and developed economies/countries will enable international private investors to plan properly and take preventive actions when engaging in PPP arrangements in any part of the world. Further, international investors will know the expectations of governments in PPP arrangements in both developing and developed countries. Also, governments who are yet to adopt the PPP concept will be considerably informed of the key issues to consider when devising policy guidelines and legislation for PPP implementation.

Essentially, there is a large strand of literature on the reasons/motivations for adopting PPP; however majority of the past related studies have offered discussions which

*Corresponding author. E-mail: *oseikyeirobert@yahoo.com*

are either country/economic specific (e.g. see Marin, 2009; Carbonara & Pellegrino, 2014; Osei-Kyei et al., 2014; Ismail, 2013; Liu & Wilkinson, 2011; Li, Akintoye, Edwards, & Hardcastle, 2005; Chou, Tserng, Lin, & Yeh, 2012) or compared between two developed economies/countries (e.g. see Cheung, Chan, & Kajewski, 2009b; Chou & Pramudawardhani, 2015). Though, the outputs of past related studies contribute to the international practices of PPP, they do not adequately provide a reliable representation of the differences and similarities on the reasons for adopting PPP in developing and developed economies/countries, considering a lot of methodological limitations (Chou & Pramudawardhani, 2015; Osei-Kyei et al., 2014). One key limitation is that previous related studies mostly compared with data reported in literature, which makes it difficult to thoroughly examine the significant differences and similarities.

The current paper which is part of a larger research project that aims to develop a best practice framework for PPP implementation in Ghana drawing on international experiences specifically from Hong Kong (Osei-Kyei & Chan, 2017a); seeks to empirically investigate the differences and similarities on the reasons for adopting PPP in developing and developed economies/countries, represented by Ghana and Hong Kong.

Ghana and Hong Kong are selected as representatives because in recent years, the collaboration between Africa and Asian developed economies/countries in terms of economic trades and private infrastructure investments (i.e. PPP investments) is growing rapidly (Economic Corporate Network, 2015). In this regard, selecting economies/countries from the African and Asian regions are more beneficial and impactful to both practitioners and researchers. Essentially, according to the World Bank (2016), Ghana is among the middle income economies (i.e. developing economies) because it has a Gross National Income (GNI) per capita of US$ 1,480 as at 2015. Ghana has huge infrastructure deficit, a rapid urbanization growth and exhibits a lot of sociopolitical and economic features, which are similar to many other developing economies/countries particularly African countries. The World Bank (2016) put Hong Kong among the high-income economies (i.e. developed economies). This is because Hong Kong has a GNI per capita of US$ 41,000 as at 2015. In essence, Hong Kong shares similar political and economic characteristics with other developed economies/countries in Asia including Singapore, Taiwan, South Korea and Japan. Thus, both Ghana and Hong Kong are considered suitable to represent the practices of PPP in developing and developed economies/countries in Africa and Asian regions.

The outputs of this study contribute to knowledge on the international best practices of PPP. Further, practitioners will be informed of the investment strategies to adopt when engaging in PPP projects in the developing and developed economies/countries particularly in Africa and Asia.

1. Previous studies on the reasons for implementing PPP

In the last decade, researchers have attempted to unravel the underlying motives for PPP adoption from developing and developed economies/countries' perspectives. Essentially, identifying the performance objectives for PPP transactions is considerably informed by the reasons for implementing PPP in a country (Yuan, Zeng, Skibniewski, & Li, 2009). In the developing economies/countries, PPP is seen to have been adopted by governments as a conditionality on loans from international financial institutions (Thomas, Kalidindi, & Ganesh, 2006; Jamali, 2004), whereas alleviating poverty and improving the living standard of people are some of the major reasons mentioned by other researchers (Bhatia & Gupta, 2006).

Chan et al. (2009) by means of a questionnaire survey found that the reasons for adopting PPP in China include providing an integrated solution for public infrastructure, solving the problem of public sector budget constraint and reducing public money tied up in capital investments. Also, Ismail (2013) found similar reasons to that of Chan et al. (2009), where from the Malaysian perspective, PPP implementation is mainly due to its creativity and innovation approaches, solves the problem of public sector budgetary constraint and provides an integrated solution for public infrastructure. Osei-Kyei et al. (2014) through a questionnaire survey also found out that PPP implementation in Ghana is chiefly due to its reduction of public administration cost, allows for shared risk and reduces the problem of public sector budget constraint. It is observed that the reasons for implementing PPPs in developing economies/countries have gone beyond relieving governments from their budgetary constraint. Innovation and risk sharing offered by the PPP policy have also gain attention in developing economies/countries. Nevertheless, the huge infrastructure deficit, which puts heavy financial pressure on budgetary allocations as well as forcing many governments to accept loans with strict conditionality, continues to be a major motivation for many governments in developing economies/countries.

Governments in the developed economies/countries seem to have divergent rationale for PPP adoption. Obviously, given the high infrastructure growth in these industrialized countries, the drive to adopt PPP policy is not likely to be underpinned by huge infrastructure gaps, which often put enormous pressure on government budgetary allocations as seen in developing economies/countries. For instance, a study conducted by Liu and Wilkinson (2011) indicates that the acceleration of infrastructure provisions, better risk allocation and whole life cycle cost savings are the key drivers for PPP in New Zealand. Further, Carbonara and Pellegrino (2014) mentioned that tapping into private sector expertise and financial capabilities are the key motivation for PPP adoption in Italy. Li et al. (2005) also summarized reasons for PPP in the U.K as better project technology and economy, greater public benefit, public sector avoidance of regulatory and financial

constraints and public sector saving in transaction costs. Cheung, Chan, and Kajewski (2010) through a questionnaire survey emphasized that providing an integrated solution, facilitating creativity and innovative approaches, and saving time in delivery project form the basic reasons for PPP implementation in Australia. Consequently, some of the reasons identified in Australia also form the rationale for PPP adoption in Hong Kong, particularly facilitating creativity and innovative approaches, and providing an integrated solution for public infrastructure (Cheung & Chan, 2011). This is quite understandable because in recent times, most developed economies/countries aim to build public infrastructure incorporating green technology, where PPP is seen as the best procurement approach (Efficiency Unit, 2008). Lastly, from the above pieces of literature, it is obvious that the reasons for governments accepting the PPP policy vary among developing and developed economies/countries. Whilst, some governments primarily seek to adopt the PPP policy due to financial stress and burden given the huge infrastructure deficits; others rather embrace the policy primarily for innovative and creativity enhancement purposes. However, there could also be some common reasons for adopting PPP by governments in both developing and developed economies/countries. Thus, it will be important for such reasons to be fully explored to further broaden knowledge on the international best practices of PPP. This study therefore seeks to provide such an in-depth empirical analysis of reasons for implementing PPP in developing and developed economies/countries.

2. Overview of PPP practices in Ghana and Hong Kong

2.1. Ghana's experience

The concept of PPP is not completely new in Ghana. Since the early 1990's, the government has engaged the private sector in some public service delivery particularly in the telecommunication, water, energy, sanitation and sewage sectors (Oteng-Ababio, 2010; Awortwi, 2004; Ameyaw & Chan, 2013). However, with respect to physical public infrastructure such as railways, airports, public hospitals, schools, roads, bridges and ports, the private sector's participation has been considerably low (Osei-Kyei & Chan, 2017b). The government has been the sole provider for these public facilities mostly financed through the national budget, international financial institutions and donors (World Bank, 2011). Considering the rapid urbanization growth, which has resulted to the rapid increase in demand for physical public infrastructure, the Government of Ghana (GoG) officially introduced the PPP policy in 2004 (Ministry of Finance and Economic Planning, 2011). Unfortunately, the policy failed to be operationalized because of the lack of understanding on how it should be implemented (Osei-Kyei & Chan, 2017b). In 2011, the newly elected government launched another policy guideline for PPP to encourage private sector participation in public construction projects. Through the policy guideline, the PPP Advisory Unit (PAU) and Project and Financial Analysis (PFA) Unit under the Ministry of Finance and Economic Planning-Public Investment Division (MOFEP-PID) were established to front the implementation of the policy (Osei-Kyei, Chan, & Dansoh, 2017). Currently, a draft PPP bill is under consideration by the Parliament of Ghana. No distinct PPP model is practiced in Ghana; however the design-build-finance and operate (DBFO) concession structure has mostly been used for few couple of projects. Since 2004, projects including the Kojokrom Market Development Project, Asutsuare Water Treatment Plant and Accra Reverse Osmosis Desalination Plant have been implemented, and these projects have their ups and downs (Osei-Kyei & Chan, 2017b). Emphatically, majority of PPP projects initiated by the government are currently at the pre-feasibility and feasibility stages.

2.2. Hong Kong's experience

The private sector's participation in public infrastructure delivery in Hong Kong dates back in the late 1960's (Chan et al., 2009). The private sector has actively participated in diverse sectors of the country's economy. Specifically, the PPP concept is also not completely new in Hong Kong (Cheung et al., 2009b). However, the term 'PPP' may be unfamiliar to many practitioners because in previous years, build operate transfer (BOT) has been the widely used model for public infrastructure projects (Mak & Mo, 2005). The traditional BOT model primarily involved a concession arrangement between the government and private sector, where the investor delivers and operates the public infrastructure over an agreed period mostly 30 years (Kumaraswamy & Zhang, 2001). The BOT model was predominantly applied in the delivery of tunnel projects including the Cross Harbour Tunnel, Western Harbour Crossing, Tate's Cairn Tunnel, Eastern Harbour Crossing and Route 3 County Park Section (Zhang & Kumaraswamy, 2001). In 2000, the Hong Kong government officially introduced the PPP policy after it been successful in other developed countries (Cheung, Chan, & Kajewski, 2012). Considering, the past successful BOT experiences, the government was confident that the PPP policy will also be successful in Hong Kong. This is because BOT shares common features with many other PPP models (Shen, Platten, & Deng, 2006). It is worth noting that, though the traditional BOT is similar to PPP; the PPP policy allows practitioners to adopt different concession models compared to the conventional BOT approach (Efficiency Unit, 2008). The Efficiency Unit is the official institution responsible for promoting PPP practice in Hong Kong (Cheung et al., 2009b). The unit has issued constructive and informative guidelines for PPP application over the years. The first PPP guideline was issued in 2001 (Efficiency Unit, 2001), followed by a revised version in 2003 (Efficiency Unit, 2003). Recently, two revised guidelines have been issued. Basically, the policy guidelines seek to adequately enhance the skills and knowledge of public officers and civil servants on the best ways of implementing PPPs in Hong

Kong (Efficiency Unit, 2008). They also capture more international experiences mainly from the U.K and Australia (Efficiency Unit, 2007, 2008). Although, Hong Kong's PPP practice is not completely up to the level of other developed economies/countries like Canada, the U.K and Australia, impressive improvement is being realised. The implementation is gradually expanding to different sectors including the recreational, tourism and health sectors. Some of the notable successful PPP projects include the Shatin to Central Rail Link, Asia World Expo, Hong Kong Disneyland Theme Park, Cyber Port project, Chemical waste treatment plant and Kwun Tong rail extension (Shen et al., 2006; Chan et al., 2009). Different modalities of PPP are used in Hong Kong, however the U.K's Private Finance Initiative (PFI) model (i.e. DBFO) has been the widely used modality, and it forms the main contractual structure for most PPP projects in Hong Kong (Efficiency Unit, 2008).

3. Methodology

3.1. Prior literature and pre-testing

From a comprehensive review of germane literature, twelve well-defined government reasons for adopting PPP were identified. The list of factors (i.e. reasons) was sent to six PPP experts with adequate industrial and/or academic experience for review and pre-testing; four from Ghana (i.e. two academics/researchers and two industrial practitioners) and two from Hong Kong (i.e. one academic/researcher and one PPP practitioner). The purpose of the pre-testing was to ascertain the clarity and applicability of the derived factors in both jurisdictions. The experts assured the applicability and clarity of the factors in each jurisdiction with few modifications. Apparently, the modifications were mainly amendments of the questionnaire structure and format. Table 1 shows the set of government reasons for adopting PPP and their relevant literature sources.

3.2. Data collection

A questionnaire survey was conducted with targeted practicing and experienced PPP practitioners in both Ghana and Hong Kong from May, 2015 to April 2016 (Osei-Kyei & Chan, 2017a). As previously mentioned, the purpose of selecting Ghana and Hong Kong as representatives is due to the rapid growth of trade and investment (i.e. PPP investments) collaborations between Africa and Asian developed economies/countries. Thus, it is more impactful to explore the differences and similarities in the implementation practices of PPP in these diverse regions. Undoubtedly, Ghana and Hong Kong represent typical emerging and advanced economies in the African and Asian regions respectively (World Bank, 2016). The questionnaire required respondents to rate on a five point Likert scale (i.e. 1 = least important and 5 = extremely important) the importance of each reason for adopting PPP as applied in their respective jurisdiction. Targeted respondents were selected based on a two –stage sampling approach (Osei-Kyei & Chan, 2017a). First, a purposive sampling method with pre-defined criteria was adopted to identify initial prospective respondents. The pre-defined criteria were that: 1) respondent should have in-depth knowledge on the general practice of PPP and must have followed very closely to PPP development in Ghana or Hong Kong;

Table 1. Reasons for adopting PPP by governments

Reasons for implementing PPP	Sources								
	Li et al. (2005)	Osei-Kyei et al. (2014)	Ismail (2013)	Chan et al. (2009)	Cheung et al. (2010)	Liu and Wilkinson (2011)	Chou et al. (2012)	Jamali (2004)	Dixon Pottinger, and Jordan (2005)
Promotes quick delivery of public infrastructure projects	x			x	x	x	x		x
Allows for shared risks	x	x		x		x			x
Reduces government financial burden in public infrastructure provision	x	x	x	x	x		x	x	
Provides reliable and quality service delivery						x			
Improves public infrastructure management and maintenance		x							
Private sector's ability to generate funds		x							
Facilitates creative and innovative approaches in public infrastructure development	x	x	x	x	x			x	
Promotes technology transfer and innovation	x								
Reduces the public sector administrative costs		x						x	
Offers benefits to local economic and social development	x	x	x	x		x			
Facilitates sustainable public infrastructure development				x	x				
Enhances government integrated solution capacity	x		x	x	x				

and 2) respondent should have adequate direct hands-on working (at least one project) and/or research experience in PPP project delivery in Ghana or Hong Kong (Osei-Kyei & Chan, 2017a). In the second stage, the identified respondents were opportunistically requested to suggest potential colleagues who may be interested to participate in the research study. Majority of the suggested prospective participants willingly accepted to participate in the survey and were therefore added to the final list of respondents (Osei-Kyei & Chan, 2017a).

In total, 207 potential respondents from the industrial and academic sectors were sourced and identified from PPP related publications that focused on Ghana or Hong Kong, dedicated private sector organizations and public institutions/departments that have expressed strong interest in PPP projects (e.g. Ghana (Ghana Water Company Limited, Ghana Highways Authority, Ghana Ports and Harbour Authorities, Urban Roads Department, Public Procurement Authority and Public Investment Division); Hong Kong (Housing Department, Efficiency Unit, Highways department, Architectural Services Department and Civil Engineering and Development Department)) (Osei-Kyei & Chan, 2017a). Out of the total respondents identified, 120 came from Ghana, whereas 87 came from Hong Kong. The major reason for identifying a large number of respondents in Ghana is because, in the last couple of years more public institutions and departments have initiated quite a large number of PPP projects, therefore many people are involved with PPP practice in Ghana compared to Hong Kong (Osei-Kyei & Chan, 2017a). Also, Ghana's population size (i.e. 26.7 million) is much bigger compared to the population size in Hong Kong (7.24 million) (World Bank Group, 2015; Osei-Kyei & Chan, 2017a), thus there is the possibility of identifying more potential PPP practitioners in Ghana than Hong Kong. Questionnaires were distributed to the targeted respondents either by face-to-face (i.e. majority of questionnaires distributed in Ghana) and/or e-mails (i.e. majority of questionnaires distributed in Hong Kong). A total of 103 completed questionnaires were received; 77 from Ghana and 26 from Hong Kong representing response rates of 64.17% and 29.89% respectively. The higher response rate in Ghana was anticipated considering that majority of the questionnaires were administered by face-to-face, which always yields a favourable response rate compared to online and telephone surveys (Szolnoki & Hoffman, 2013; Ameyaw & Chan, 2015; Osei-Kyei & Chan, 2017a). Although, a lower response rate is obtained in Hong Kong, the sample size of 26 is considered satisfactory and reasonable when compared with past related studies that were conducted in Hong Kong (see e.g. Cheung et al., 2009b, 2012 (34 responses); Javed 2013 (18 responses); Osei-Kyei & Chan, 2017a). More importantly, the Hong Kong respondents possess rich experience in PPP practice (Table 2).

Notwithstanding, the overall sample size of 103 is suitable and adequate for further analysis, when compared with similar studies including Cheung, Chan, and Kajewski (2009a) (45 responses; 34 from Hong Kong and 11 from Australia) and Liu, Wang, and Wilkinson (2016) (57 responses; 32 from China and 25 from Australia) (Osei-Kyei & Chan, 2017a). The demographic distribution of respondents is presented in Table 2.

As shown in Table 2, approximately 80% and 77% of respondents from Ghana and Hong Kong respectively are industrial practitioners (i.e. public and private sectors), who are mostly exposed to the actualities of PPP practices compared to respondents from the academic sector. Further, almost 62% and 65% of respondents have more than six years of PPP experience either as researchers and/or industrial practitioners in Ghana or Hong Kong. This implies that the survey respondents from both countries have enough PPP experience to offer reliable responses for analysis.

3.3. Analytical techniques

The Statistical package for Social Science 21.0 was used to conduct statistical tests including reliability test using Cronbach's alpha model, Kendall concordance analysis, mean score analysis and non-parametric test (Mann Whitney U test). First, to confirm the reliability of the survey responses or data set, the Cronbach's alpha was

Table 2. Respondents' profile (Osei-Kyei & Chan, 2017a)

Profile	Ghana		Hong Kong	
	No. of respondents	Percent (%)	No. of respondents	Percent (%)
Type of sector				
Industrial practitioners (public and private)	62	80.5	20	76.9
Academic	15	19.5	6	23.1
Total	77	100	26	100
Industrial and/or research experience in PPPs				
< 6 years	29	37.7	9	34.6
6–15 years	42	54.6	13	50.0
16 years and above	6	7.8	4	15.4
Total	77	100.0	26	100

determined. Second, the Kendall's Concordance analysis was performed to test the degree of consistency on the ranking of factors among respondents in each group (i.e. Ghana and Hong Kong). This analysis was important because respondents from different PPP sectors (i.e. public, private and academic) participated in the study (Osei-Kyei & Chan, 2017a). Second, the relative importance and ranking of each reason for adopting PPP was determined using the mean score analysis. Third, Mann-Whitney U test was performed to identify the significant differences on the ranking of factors between the two independent groups. This statistical test was essential because Ghana and Hong Kong have different socio-political, economic and legal conditions, therefore it is anticipated that some reasons will be significantly different among the two jurisdictions. This non-parametric test tool is considered appropriate for the study because of the unequal sample sizes of the two independent groups; more essentially, the data set is not assumed to follow any distribution pattern (Sheskin, 2011; Osei-Kyei & Chan, 2017a). Lastly, to identify the similarities on the rankings of the two jurisdictions, quartile grouping analysis was adopted. The mean values of factors were grouped into upper and lower quartile for each jurisdiction. Based on the groupings, the factors that are similarly ranked were identified.

4. Results and discussion

4.1. Test on reliability and consistency of responses

The alpha value for the overall data set (both Ghana and Kong Kong) is 0.731, which is above the acceptable value of 0.70 suggested by George and Mallery (2003). This therefore suggests that there is good uniformity of responses and high level of reliability of the research instrument (Norusis, 2008).

Table 3 presents the test results of the Kendall's concordance analysis within each group at a significance test value of 0.05. The Kendall's coefficient of concordance (W) for the ranking of factors within each group is 0.363 and 0.519 for Ghana and Hong Kong respectively. Both group of respondents obtained a significance value of 0.00. However, considering that the number of attributes exceeds seven, the chi-square value is rather referred to than the computed W value (Chan et al., 2009).

According to the degree of freedom, the critical value of chi-square is 19.675 for the two groups; this is below the computed chi-square values of 307.179 and 148.437 for Ghana and Hong Kong respectively. Thus the assessment by respondents in each respondent group is proved to be consistent. Clearly, this suggests that the experts have excellent knowledge and are fully aware of the set of 12 government reasons for adopting PPP (Wibowo & Alfen, 2014). Further, the results indicate that there is minimal variability in the rankings furnished by the experts in each group, and this signifies that the survey responses are authentic and valid for further analysis.

4.2. Mean analysis and significant difference(s) on rankings of the reasons for adopting PPP in Ghana and Hong Kong

The rankings of the reasons for adopting PPP in Ghana and Hong Kong based on the calculation of mean scores are given in Table 4. From the table, it is noticeable that the mean values for Ghana and Hong Kong range from 2.58 to 4.48, and 2.46 to 4.69. The total variations in responses are 1.9 and 2.23 for Ghana and Hong Kong respectively. These outputs suggest that the Ghanaian respondents rated the set of reasons more similarly compared to their Hong Kong counterparts. Further, in Ghana's ranking, seven reasons emerged as critical (i.e. mean values ≥ 3.50) whereas in Hong Kong's ranking, nine reasons are critical. Essentially, a factor (i.e. reason) with mean value equal to or above 3.50 is considered critical because such a factor is not relatively neutral (neither important nor unimportant) but is significant and essential to practice (c.f. Osei-Kyei, Chan, Ayirebi, Ofori-Kuragu, & Oppong, 2018); nonetheless, 3.50 has been used as critical cut-off point by many past related studies including Osei-Kyei et al., 2018 and Ahadzie, Proverbs, and Olomolaiye (2008). Overall, the Hong Kong respondents perceived the set of reasons as more relevant compared to their Ghanaian counterparts.

The significance test results on the rankings of the reasons for adopting PPP between the two independent groups are shown in Table 4 (see last column). The statistical test was conducted at a pre-defined significance test value of 0.05, where a factor with p-value less than 0.05 signifies significant difference on the importance of that factor among respondents from Ghana and Hong Kong. As presented in the table, five out of the twelve government

Table 3. Results of Kendall's coefficient of concordance analysis

Characteristics	Ghana	Hong Kong	Ghana and Hong Kong
Number of survey respondents (N)	77	26	103
Kendall's coefficient of concordance (W)	0.363	0.519	0.317
Chi-square	307.179	148.437	359.575
Degree of freedom (df)	11	11	11
Critical value of chi-square	19.675	19.675	19.675
Asymp. Sig.	0.000	0.000	0.000

A = 0.05 (95% confidence interval).

Table 4. Mean analysis and significant test results for the reasons for adopting PPP in Ghana and Hong Kong

Reasons	Ghana		Hong Kong		Ghana and Hong Kong		Mann-Whitney U test		
	Mean	Rank	Mean	Rank	Mean	Rank	U statistics	Z	p value
Promotes quick delivery of public infrastructure projects	4.48	1	4.31	3	4.44	1	841	–1.362	0.17
Allows for shared risks	4.22	3	4.38	2	4.26	2	853.5	–1.313	0.19
Reduces government financial burden in public infrastructure provision	4.31	2	4.12	4	4.26	3	845	–1.343	0.18
Provides reliable and quality service delivery	3.74	6	4.69	1	3.98	4	325	–5.506	0.00*
Improves public infrastructure management and maintenance	3.87	4	3.69	6	3.83	5	853	–1.258	0.21
Private sector's ability to generate funds	3.55	7	3.77	5	3.60	6	858	–1.149	0.25
Facilitates creative and innovative approaches in public infrastructure development	3.44	9	3.54	9	3.50	7	872	–1.069	0.29
Promotes technology transfer and innovation	3.77	5	2.46	12	3.44	8	344.5	–5.206	0.00*
Reduces the public sector administrative costs	3.29	10	3.42	10	3.32	9	875.5	–1.065	0.29
Offers benefits to local economic and social development	3.48	8	2.69	11	3.28	10	542.5	–3.722	0.00*
Facilitates sustainable public infrastructure development	3.00	11	3.65	7	3.14	11	636	–2.974	0.00*
Enhances government integrated solution capacity	2.58	12	3.58	8	2.84	12	397.5	–4.817	0.00*

* Significant level (0.05).

reasons for adopting PPP are significantly different among the two jurisdictions. This outcome confirms previous assertion that governments in developing and developed economies/countries have different motives for adopting the PPP concept because of the varying levels of infrastructure needs (Cheung et al., 2010; Osei-Kyei et al., 2014).

Essentially, the reasons with significant differences which are ranked higher in Ghana than Hong Kong, directly relate to the economic and social benefits of PPP. These include "promotes technology transfer and innovation", and "offers benefit to local economic and social development". The results are consistent with previous studies including Osei-Kyei et al. (2014), where economic benefits related reasons for PPP were identified to be critical in Ghana. "Promotes technology transfer and innovation" is ranked fifth by the Ghanaian respondents, whereas Hong Kong respondents ranked it 12th. Though in the traditional bid-build system, technology transfer and innovation is also relevant; it is more critical in PPPs in Ghana and other developing countries. This is because the PPP market in Ghana is dominated by foreign investors (Dulaimi, Alhashemi, Ling, & Kumaraswamy, 2010). Apparently, PPP projects require huge investment capital and most locally based investors (i.e. small and medium enterprises) cannot enter into such project arrangement. Thus, many governments including the GoG hope that through PPP schemes, local practitioners particularly those from the public sector will learn from the innovations and skills of these international private firms. That notwithstanding, it has been mentioned in the national policy for PPPs in Ghana that, any public project that does not seem to promote technology transfer and innovation should not be procured through PPPs (MOFEP, 2011). Although the immediate effect of technology transfer may not be seen, in the long-term, it will improve the investment potentials of local investors. Also, locally based investors will be able to build their capacity to engage in more divestitures. Unlike Ghana, Hong Kong has local firms who are experienced and have the capacity to deliver PPP projects; therefore, very few foreign firms operate in their PPP markets (Li et al., 2005). For instance, projects including the Asia World Expo, Cross Harbour Tunnel and Cyber Port project procured in Hong Kong, involved a partnership with locally based investors and companies. Certainly, the issue of technology transfer and innovation will not be part of the reasons for PPP implementation in Hong Kong as well as other developed economies/countries (Li et al., 2005).

"Offers benefit to local economic and social development" is ranked eighth in Ghana and eleventh in Hong Kong. Though, it is ranked quite close by the two respondent groups, the difference between the mean values obtained for Ghana (i.e. 3.48) and Hong Kong (i.e. 2.69) is large. Osei-Kyei et al. (2014) explained that in general, PPP projects contribute substantially to local economic and social development through the creation of jobs and other business opportunities for local commuters. Ghana

and many other developing economies/countries have high unemployment rate and poor social livelihood. Thus, many governments in developing countries anticipate that through PPP schemes the rate of unemployment could be reduced considering that PPP projects create more job opportunities compared to construction projects delivered through the traditional bid-build system. In essence, job creation in PPP projects has been proven in some past PPP projects in developing economies/countries. For instance, in the Lekki toll road PPP project in Nigeria, Osei-Kyei and Chan (2015) reported that 635 short term and 1146 long term jobs were created for people. Other successful PPP projects in developing countries including the N4 toll road project in South Africa and Port of Maputo in Mozambique created many short and long term job opportunities for local commuters. Undoubtedly, Hong Kong has lower unemployment rate compared to Ghana; therefore, the need to adopt the PPP policy to create more job opportunities is not important to the government. Importantly, Hong Kong is an international business hub, which host large private companies from Asia and Europe. Therefore, job creation may not necessarily need to come from the implementation of PPP projects as perceived by the Ghana government.

The remaining three reasons with significant differences between the two respondent groups are ranked higher in Hong Kong than Ghana. In essence, they relate to the efficiency and quality service delivery of public facilities. They include "provides reliable and quality service delivery", "facilitates sustainable public infrastructure development" and "enhances government integrated solution capacity". These outputs support the findings of Cheung et al. (2010), where efficiency related drivers were identified as the most important reasons for implementing PPP in Hong Kong and other developed economies/countries including Australia and the U.K.

The reason "provides reliable and quality service delivery" is ranked first by respondents from Hong Kong, whereas their Ghanaian counterparts ranked it sixth. As explained by Cheung et al. (2009b), Hong Kong being an international region requires high quality of public facilities and services at all time. Therefore, considering that the private sector is well-known to offer better and quality service compared to the public sector (Li et al., 2005; Osei-Kyei et al., 2014), the PPP concept is considered as the best option to address this issue. Importantly, this is seen in the Asia World Expo project and the Cyber Port project. Emphatically, the Hong Kong government could have procured the Asia World Expo project through the traditional bid-build method. However, because of the high quality of service required to keep it to an international standard (Cheung, 2009); the government partnered the private sector (Hayllar, 2010). Currently, it is counted as one of the world class exhibition centers and contributes substantially to Hong Kong's tourism industry (Asia World Expo, 2010). Although, Ghana also requires high quality service delivery for public facilities, this is certainly not a necessity at the moment. In the meantime, the focus of the Ghana government is to provide more public facilities to meet the increasing demand and rapid urbanization. Further, unlike Hong Kong, Ghana is not an international hub; therefore, the desire to keep public facilities at high international standards is not there. In essence, it does not form part of the priorities of the government as seen in Hong Kong and other developed countries.

"Facilitates sustainable public infrastructure development" is seventh in Hong Kong and eleventh in Ghana. This is unsurprising considering that sustainability in construction has become a very important issue in Hong Kong compared to Ghana. In the last decade, the Hong Kong government with the assistance of the Hong Kong Green Building Council (HKGBC) have made considerable efforts to promote green buildings and infrastructure. Importantly, the PPP concept contributes substantially towards developing green infrastructure in Hong Kong. Through PPP arrangements, the government provides specific sustainability requirements, where the private sector will have to consider those requirements in its design and management of the PPP project. Though, sustainability could be achieved through the traditional bid-build procurement method, it is very costly compared to the use of PPP schemes. The reason is that in PPP, the private sector can use its innovation and expertise to design, construct and manage the green public facility at a much reasonable cost. The Cyber Port project is a notable example of a PPP project in Hong Kong, where investor employed green technologies and environmental awareness management strategies. While, sustainability is also important in Ghana; it is an emerging concept. Hence, the government does not consider it a major priority for implementing the PPP policy. Essentially, sustainability will be an important reason for adopting PPP in Ghana, only when the basic economic and social benefits of PPP have been realised.

"Enhances government integrated solution capacity" is ranked eighth by respondents from Hong Kong, whereas their Ghanaian counterparts ranked it last (i.e. twelfth). As explained by Chan et al. (2009), PPP as an integrated solution means that all functions are bundled as a complete set of contract and awarded. The functions include designing, financing, building, operating and maintenance. Also, small scale projects are put together as one contract and awarded to a private consortium. These enhance efficiency and reduce the total lifecycle cost of the public facility. In Hong Kong, the construction and maintenance of public infrastructure could be very expensive. Thus, the PPP concept offers the government opportunity to provide public facilities at a much reduced cost through the bundling of functions or combining different small scale projects as one contract, which is often not seen in the traditional procurement method. Unlike Hong Kong, providing public facilities in Ghana through the traditional method is not very expensive considering a lot of favourable factors such as the availability of land, local materials and labour force. Therefore, small-scale projects are often awarded separately to local contractors. This therefore may have contributed to the low ranking of this reason for adopting PPP in Ghana.

4.3. Similarities on the ranking of reasons for adopting PPP among respondents from Ghana and Hong Kong

The similarities in the top and bottom rankings by respondents from the two jurisdictions were analyzed using quartile groupings. Table 5 shows the upper and lower quartiles of the reasons for adopting PPP for each economic jurisdiction.

The upper and lower quartile subsets contain the 25% highest and lowest mean values of the reasons for adopting PPP respectively. The hinges (cut off values) for the upper quartile subsets are 4.13 for Ghana and 4.26 for Hong Kong. Further, the lower quartile hinges are 3.32 (Ghana) and 3.45 (Hong Kong).

The upper quartile subsets of both Ghana and Hong Kong contain three factors, with mean values ranging between 4.22 and 4.48, and 4.31 and 4.69 respectively. Two reasons for adopting PPP appeared in each country's subset; these include "promotes quick delivery of public infrastructure projects" and "allows for shared risks". Essentially, these reasons are also within the top three rankings of both jurisdictions. The reason "promotes quick delivery of public infrastructure projects" is ranked first in Ghana and third in Hong Kong. Clearly, the results imply that irrespective of the culture or geographical differences, this reason for adopting PPP is critical for governments. This is quite understandable considering the fact that in PPP arrangements, the private sector gains when the project is completed before schedule. This is because projects completed on or before schedule offer investors the opportunity to recoup their returns earlier. Thus, the PPP concept tends to promote the timely delivery of public facilities. In essence, it is the best procurement option to adopt if governments want to provide public facilities at a particular period of time. The quick delivery of PPP projects is seen in many projects both in developing and developed countries. For example, the Cross Harbour Tunnel project in Hong Kong was constructed within 36 months instead of the planned 47 months (Mak & Mo, 2005). Similarly, the N4 Toll road project in South Africa was constructed within three and half years as planned (Osei-Kyei & Chan, 2016).

"Allows for shared risk" is ranked third by the Ghanaian respondents, whereas their Hong Kong counterparts ranked it second. This similarity in the top rankings of both jurisdictions is also not surprising. This is because risk management is a critical component of PPP arrangements (Ke, Wang, Chan, & Cheung, 2011). Unlike the traditional bid-build system where majority of project risks are retained by the public sector; in PPP scheme, risks are shared among parties, preferably to the party with better mitigation techniques (Chan, Yeung, Calvin, Wang, & Ke, 2011). This relives the public sector from the burden of mitigating risks that are not within their capacity. The effect of risk sharing in PPP is that it reduces the lifecycle cost of the project and ensures value for money in public infrastructure delivery.

In the lower quartile subsets, "reduces the public sector administrative cost" is the only reason which falls within each jurisdiction's subset. It is ranked tenth by respondents from both economic jurisdictions. The public sector administration costs for public projects involve the cost of hiring consultants, project monitoring activities and mitigating more of project risks. Importantly, the public sector's administrative cost is very high for traditional bid-build projects due to the excessive risks retained by the public sector. Considering that PPP allows, the public sector to transfer more risks to the private investor, the administrative costs of the public sector are often reduced. Apparently, "reduces public sector administrative cost" is ranked lower in both economic jurisdictions because of the misallocation and incomplete transfer of risks recorded in many of the recent PPP projects implemented in Ghana and Hong Kong. Because risks are not properly shared among parties or the public sector retains excessive risks than the private investor, the public sector's administrative costs end up increasing. This may have influenced the respondents to rank this reason for adopting PPP lower.

Table 5. Quartile groupings of reasons for adopting PPP in Ghana and Hong Kong

Quartiles	Ghana		Hong Kong	
	Reasons for adopting PPP	Mean	Reasons for adopting PPP	Mean
Upper quartile $(Q_3)_{Ghana}=4.13$ $(Q_3)_{HK}=4.26$	Promotes quick delivery of public infrastructure projects	4.48	Provides reliable and quality service delivery	4.69
	Reduces government financial burden in public infrastructure provision	4.31	Allows for shared risks	4.38
	Allows for shared risks	4.22	Promotes quick delivery of public infrastructure projects	4.31
Lower quartile $(Q_1)_{Ghana}=3.32$ $(Q_1)_{HK}=3.45$	Reduces the public sector administrative costs	3.29	Reduces the public sector administrative costs	3.42
	Facilitates sustainable public infrastructure development	3.00	Offers benefits to local economic and social development	2.69
	Enhances government integrated solution capacity	2.58	Promotes technology transfer and innovation	2.46

Note: Quartiles cut off values are calculated using the quartile function in MS Excel.

5. Implications for international practice of PPP

The results of this study offer several strategic management procedures and preventive actions which significantly contribute to the international best practice framework for PPPs. First, international private investors and developers should have detailed project plans and designs as well as clear objectives before engaging in PPP arrangements in either a developing or developed economy/country. This is because the quick delivery of public projects through PPPs is a major reason for PPP implementation in both developing and developed economies/countries. Also, because risk sharing is a prime motive for adopting PPPs in both developing and developed economies/countries, international investors should have comprehensive risk sharing and mitigation plans. Further, they should be ready and willing to accept more risks particularly for project and financial risks. It is also important that investors will completely transfer risks to other parties where necessary. For developing economies/countries such as Ghana, foreign investors should adopt more innovative and creative approaches when delivering PPP projects; and more importantly, they should be open and frequently communicate with local practitioners. These measures will considerably enhance technology transfer throughout the PPP process. Also considering that local economic and social development is critical to governments in developing economies/countries such as Ghana; investors should employ more local contents in the delivery of their projects. This will help them to create more job opportunities within the locality. For develop economies/countries such as Hong Kong, because efficiency and quality public services is keen, it is prudent for investors to adopt planned maintenance schedules and competent staff so that they can deliver PPP projects according to the required output requirements and services.

Conclusions

This paper has empirically compared the reasons for implementing PPP policy in developing and developed economies/countries using Ghana and Hong as examples. An empirical questionnaire survey was conducted with relevant experienced practitioners in both Ghana and Hong Kong. Initial statistical test using the Kendall's coefficient of concordance analysis indicated the consistency of responses on the ranking of the reasons for adopting PPP within each respondent group. This suggested the validity of the survey responses for analysis. The mean score analysis was used to rank the reasons in each economic jurisdiction; further, Mann Whitney U test was used to assess the significant difference(s) on the rankings among the two economies/countries. The significant test results indicate that the Ghanaian respondents ranked the reasons related to the economic and social benefits of PPP higher whereas, the Hong Kong respondents ranked efficiency and quality services related reasons rather higher. The economic and social benefits related reasons include "promotes technology transfer and innovation", and "offers benefit to local economic and social development". Also, the efficiency and quality service related reasons include "provides reliable and quality service delivery", "facilitates sustainable public infrastructure development" and "enhances government integrated solution capacity". Quartile grouping analysis was used to identify the similarities in the top (i.e. upper quartile) and bottom (i.e. lower quartile) rankings by respondents from both economic jurisdictions. The results show that "promotes quick delivery of public infrastructure projects" and "allows for shared risks" are the most important reasons for adopting PPP in both economic jurisdictions. This implies that irrespective of cultural and geographical differences these reasons are critical to governments. On the other hand, the reasons "reduces the public sector administrative cost" is ranked lower in both economic jurisdictions.

Considering the fact that only two economic jurisdictions were compared, it should be mentioned that the results of the study may not be readily generalized. However, the outputs are still impactful and beneficial for practice and future reference particularly for investment and trade collaborations between African countries and Asian developed economies/countries.

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