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Public-Private Partnerships in the Transport Sector: Lessons From International Experience for Developing Countries

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Abstract: The need for more efficient and effective public private partnerships (PPP) projects in transport is gaining momentum and will not rescind as population of persons and cars takes upward shifts. This paper seeks to identify international experiences of PPPs in transport from the wider spectrum and ends with narrowing its scope to tolls in road transport. The study undertook an exploratory design. We delved into secondary data collected that majorly from studies that undertook empirical assessment of PPPs using country to country perspective. Data was sourced from scholarly journals, documents, websites searches and newspapers. A collective memory approach is further used to forecast future trends while providing implications for the tomorrow's actions for PPPs adoption in transport. The outcome of the study provides a hub of experiences for implementing PPPs in transport while acknowledging the concession types, remuneration types and critical success factors that policy makers implementers and academia can consider to inform the practice and theory of PPPs in transport.

Keywords: Public Private Partnerships, Transport, Toll roads

1. Introduction

Public-Private Partnerships in transport are not new but remain evolving. As populations rise, the demands for public transport increase. This puts governments in a terrible situation. Defining PPPs has been met with obesity and variants in terminology. The World Economic Forum (2005) defines partnership as a form of agreement that entails reciprocal obligations and mutual accountability, voluntary or contractual relationships, the sharing of investment and reputational risks, and joint responsibility for design and execution.

According to Nuwagaba (2019), a PPP is a globally accepted public sector procurement mechanism whereby the government gets commitment from the private sector and transfers a certain level of responsibility to the private sector to provide public facilities or services. From an economic perspective, Iossa and Marti (2015) assert PPPs have been defined largely as 'long term contractual arrangements between the public and private party, whereby the private party takes over the

traditional role of the public entity to build infrastructure, finance the investment and manage the facility.

A PPP is also defined as cooperation between public and private actors with a durable character, risks, and benefits are important features (Klijn & Teisman, 2005). Casady et al (2020) and Tahir (2017) define PPPs as "arrangements between government and private sector entities to ensure the provision of public infrastructure, community facilities, and related services". PPPs refer to "a variety of cooperative arrangements between the government and the private sector or non-governmental organizations to improve infrastructure networks and enhance service delivery through out-contracting, out-sourcing, donating and privatizing public goods" (Fombad, 2013).

Carpintero (2010), Soomro and Zhang (2015) argue that PPPs have been adopted as a result of financial distress. It may be argued that it is against this pretext that World Bank (2018) has escalated its promotion of PPPs in closing infrastructural gaps

in developing countries. Carpintero (2010) acknowledges that while financial distress characterized the adoption of PPPs after the collapse of communism, the need to increase public infrastructure was top on the agenda. It is reported that countries like the USA, have put 9% of roads under toll management (Podgorski et al., 2005). Jou, Chiou, Chen and Tan (2014) consistently argue that due to high maintenance and construction costs, governments in countries like Uganda, Kenya, and South Africa are increasingly putting new roads under tolls and Build Operate Transfer (BOT) frameworks.

World Bank (2016) asserts that while PPPs have been resorted to as a cure of public transport mess and financing constraints with others suggesting quicker wins alongside technology, they have only delivered to some extent across different international contexts. In India, PPPs have reduced travel time and delivered early finance (World Bank, 2013; Asian Development Bank, 2006). Latin American countries (LACs) such as Columbia, Brazil, Argentina, and Chile are quoted to have secured similar benefits. Despite the benefits PPPs deliver, they have been frustrating for some early adopters like the Netherlands (Koppenjan, 2005) and scary for late adopters especially in the developing world that needs PPPs most in transport and other sectors.

Due to the high capital requirements and the need to derive efficiency gains in public transport, governments have resorted to the adoption of public-private partnerships (PPPs). In addition, PPPs have been adopted across the world's transport sector as part of a move to increase private sector involvement while tapping into financial capital pools and innovations that characterize the private sector. However, as the population and the number of vehicles increases, governments are unable to match the pace of required public transport infrastructure at short intervals as required by citizens. This has prompted governments the world over to adopt public-private partnerships, a model of financing that can help government escalate the provision of transport infrastructure. Countries such as the UK, Columbia, France, Italy, Spain, UK, Brazil, Germany, Columbia and broadly EU members states where metros under the guise of increasing access to public transport have been fully developed and functional, and available.

While PPPs have been adopted in the transport sector, they continue to be critiqued and resented

by citizens across sectors including the transport sector. In academic literature, a growing number of studies have questioned the rationale of the promise of PPPs across sectors including transport. There are diverse opinions, showing that private finance obtained through PPP concession requires additional government expenditure to bail out PPP concessionaires or taking over debt stripped PPPs. Hodge (2009) reveals and shares in this view, arguing that PP concessions always remain with some sort of bill to be paid by taxpayers.

Notwithstanding the adoption of PPPs in transport continues to gain recognition. Recent evidence of this trend exists in Africa. For example, in Uganda, the Kampala-Entebbe Bypass and the management of a yet to be built Kampala Jinja Express By-Pass Road and another joint PPP project has been signed up by the governments of Uganda and the Democratic Republic of Congo (DRC) to construct a 50kms road connecting Uganda and DRC to boost infrastructure to increase trade flows in DRC that serves as a strategic market for Uganda's industrial base. In Rwanda, Bugesera International Airport is also being built and is to be managed under a PPP arrangement.

This paper, therefore, serves to review the working of PPPs in transport using international experiences and trends, explain the issues of consideration in the setting of road toll fees, while exploring factors responsible for the critique and failure of PPPs in transport. This background sets a foundation for deriving recommendations necessary to improve the working of PPPs as attractive network partners in the development of the vibrant transport sector in Sub-Saharan Africa.

2. Theoretical Foundation

Based on a review of definitions of public-private partnerships (PPPs), it is deduced that PPPs are operated within a network where the public sector entity joins effort with the private sector actor to produce and deliver a public good or service. In this context, the study shall be anchored by the network theory. According to World Bank (2016), Delmon (2009) & Nduhura (2019) show that PPPs involve an array of stakeholders that constitute a network. To emphasize this assertion Delmon (2009) provides a diagrammatic representation of such a network. "Network analysis as advocated for by the social network theory is the study of how the social structure of relationships around a person,

group or organization affects beliefs or behaviors" (Chowdhury, Chen & Tiong, 2011:252). In the network, it can be deduced that there always exists a range of stakeholders in the PPPs relationships that play varying roles to ensure that a PPP succeeds (Chowdhury, Chen & Tiong, 2011).

Accordingly, Delmon (2009) argues that in studies and practice of marketing data from networks is used to understand cause and effect relations, for example, marketing expenditure and sales revenue, and to increase the effectiveness of marketing strategies (Dalmon, 2019). Since PPP relationships are usually complex, then the network theory is deemed relevant in the study of PPPs in the transport sector. Similar studies on PPPs have adopted network theory to analyze, generate findings and recommendations on improving service delivery performance by the adoption of PPPs. For instance, Wang et al. (2020) explored risks factors associated with PPP projects using network theory. Cui et al. (2018) studied PPP infrastructure projects using network theory to explore the relationship between PPP and sustainable development.

Similarly, Casady et al. (2020) use network analysis to arrive at contributions aimed at improving the

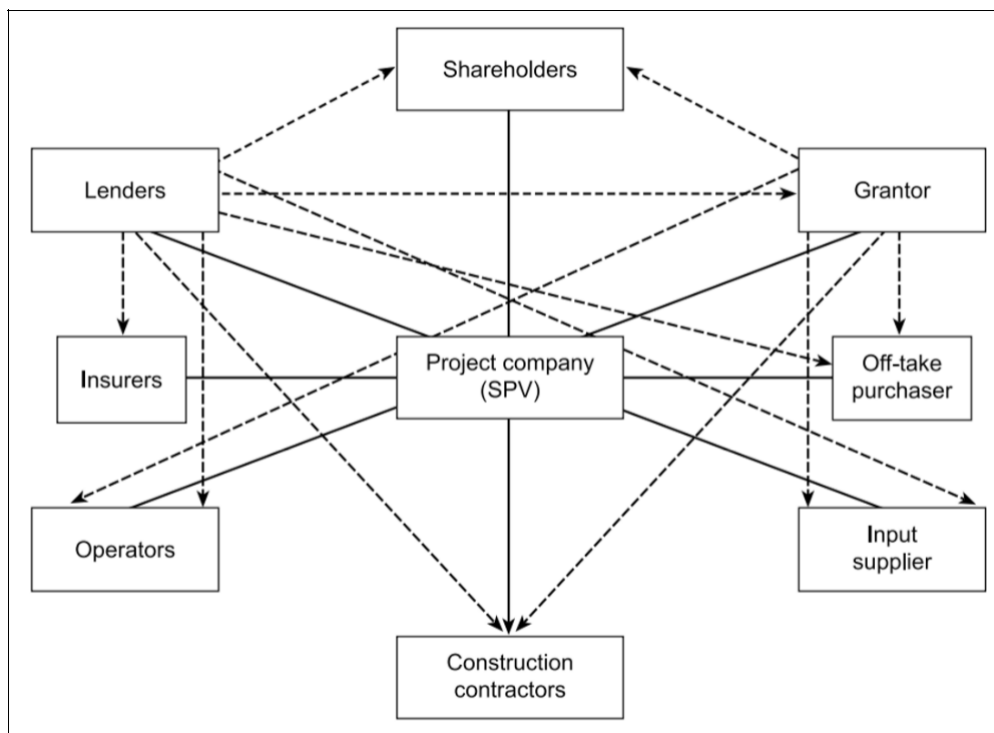
governance of PPPs. While Alexander (2012) uses network theory to shed light on the performance of brownfield projects. Applied in this study, we review with scholarly lens, the role of the PPPs in improving transport while explaining challenges that arise when dealing with a range of network actors, to arrive at conclusions and recommendations necessary to make PPPs work for the good of society.

3. Methodology & Methods

The investigation approach adopted in this study is exploratory in character. This design aims to enrich what is known in PPPs while extracting lessons to inform the future of PPP application in public transport. To retrieve the sought lessons, the study was framed by the following research questions:

- RQ1:** What are the country's experiences in the adoption of PPPs in public transport?
- RQ2:** What are the PPP concession types used in public transport?
- RQ3:** What factors influence the success of toll road fees charged and usage of PPP roads?

Figure 1: A Diagrammatic Representation of PPP Networks



Source: Delmon (2009)

3.1 Sampling: Event Sequence Mapping and Snowballing

As adopted in similar studies, this study acknowledges that a single document is deemed a deficiency in informing a large phenomenon like PPPs in public transport. Multiple articles and documents from diverse articles and organizations were used to collect complete information. This enabled the study to identify gaps in information and factors, influences both positive and negative while identifying patterns, relationships, and disintegrations between influences on PPPs in public transport. Some articles were selected based on citations in articles of initial contact. A list of research questions guides the selection of literature, Google scholar, research gate, and documents reviewed. The selection of documents, articles, web searches, and newspapers was based on the topics namely:

PPPs in Transport.

Tolls in Transport.

Critical success factors in PPPs.

Critical success factors in transport PPPs.

In total 69 articles and 3 newspapers articles were reviewed.

3.2 Data Collection

To answer the study questions for the study, we adopted a collective memory approach. According to Kansteiner (2002), such an approach refers to a practice where archives are used to define and predict a phenomenon. It is argued that a collective phenomenon manifests itself in the actions and statements of individuals. It is argued that to retrieve memory from insights of the memories of potentiality are likely to manifest when representations of the past are stored in archives, libraries, and museums; they occur in the mode of actuality when these representations are adopted and given new meaning in new social and historical contexts.

Using this approach, the study collectively while snowballing through article references in some instances shares representations of the past. The approach is justified as it provides collective remembrance of past events that are critical to design interventions to handle future phenomena. Applied

to this study, we reviewed existing peer-reviewed empirical studies published in journals with a bias on public management and governance and special focus was put on internationally peer-reviewed journals, government documents, and multilateral funders of PPPs on transport such as the World Bank, Asian Development Bank, African Development Bank, and United Nations publications.

Results: Overview of Existing and Upcoming PPPs in Africa's Transport Sector

4.1 Case Study 1: Kampala-Entebbe Express Bypass Road

The road is 49.5km, stretching from Kampala-Entebbe Express bypass Road. The road is estimated to have costed the government USD476 million and was financed by public finance and debt. Under the proposed management concession, the private operator is scheduled to operate and maintain the road while collecting fees that comprise O & M fees and proportion to be used to repay part of the loan used to finance engineering and construction works for the road.

While this approach enables the government to offload the government party – UNRA the burden of financing the construction of the road, the initial adoption of toll management was faced with resistance due to the lack of a legal and regulatory framework to charge citizens toll fees. While the Road Safety Act (Government of Uganda, 2019) has been passed to guide on the charging of road tolls, it can be deduced that the success of PPPs in transport requires enabling legal and regulatory frameworks.

4.2 Case Study 2: Impending City Road Entry Tolls

Similarly, like other cities in the developed world, PPPs have been adopted in urban public transport to decongest cities to reduce travel time and secure financing to operate and maintain existing transport infrastructure. While urban rail transport or metros have been adopted, it has been deemed to be unprofitable and unattractive to private investors. The reasons that continue to make urban rail transit service expensive are argued to include; expensive construction, operating and maintenance costs; the complexities of forming and sustaining

coalitions and partnerships necessary in rail transit privatization; and the inadequacy of fare revenue resulting in the need for direct and/or indirect public subsidies such as land development rights (Phang, 2007).

However, it is argued that urban bus transit has pulled more investor attention than the latter. This has been due to the following: in line with such trends, in Kampala, Uganda, there is a pending plan to have a private party "Tondeka" provide city transit bus services while establishing tolls on major highways connecting to the cities of Gulu, Masaka, Jinja and Fort portal (New Vision, October 2019). While previous similar attempts with bus companies like Pioneer buses have failed, lessons learned such as risks of paying with cash and lack of exclusivity will be able to inform the new design of operations in the pipeline.

4.3 Case Study 3: Kampala-Jinja Express Bypass Road

Another flagship PPP transport project, the Kampala-Jinja Express bypass Road that initially was intended to turn to PPP after construction has faced pro-curement delays and political confrontation as the Executive seems to favor a PPP from the start other than an Engineering Procurement Contractor (EPC), then PPP toll management design.

4.4 Case Study 4: Bugesera International Airport Under PPP

By undertaking single sourcing, it is argued that the cost of the project can be inflated and recommend adoption of competitive bidding to avert potential failure that would be attributed to single sourcing of PPP investors. Reflections from existing literature point to the view that PPPs in transport succeed when potential investors are subjected to a competitive tendering process. In such case, while citing examples of PPPs projects in Buenos Aires and Rio de Janeiro, it is argued that to arrive at the best-evaluated investor there is a need to consider issues such as the highest lease fee, lowest toll rates, least net value of revenue with variable term and least subsidy (Phang, 2006).

In Rwanda, while PPPs in other sectors like water and sanitation have taken off, PPP projects in transport are in their infancy. While other PPPs projects have been implemented in water and sanitation,

and similar like a model in managing national bus operations with handling over national bus company "Onatracom" Rwanda Federation of Transport Cooperative to operate and maintain the buses under brand name RFTC, Bugesera International Airport is currently positioned as the key PPP flag-ship project.

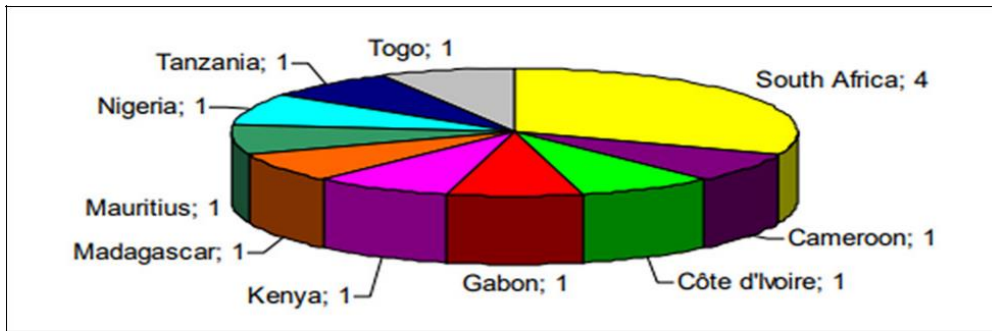
Once completed the airport features will include; a passenger terminal covering 30,000 square meters, 22 check-in counters, 10 gates, six-passenger boarding bridges, among others. The airport is expected to with capacity to handle about 1.7 million passengers every year. The first phase is expected to complete in 2020. The started as a PPP involving design, construction, and later operation and maintenance. Works commenced in 2017 with the initial phase expected to be completed in 2020 despite the temporary halt to affect some redesigns on the project (The New Times, November 2018).

In line with airport PPPs, it is argued that airport management globally has faced and continues to interface with radical shifts (Tomová, 2008). Airports were deemed to be strategic assets but have now either being handed over to the private sector in full (BOT) green PPP or partial (Equity share with the state), lease (brownfield approach), or divestitures (sale of or part of assets) (Hammani, 2006). It can also be argued despite the effort made by Rwanda in implementing Bugesera International Airport under the PPP project, the country remains a late adopter of PPP intake in the aviation transport sub-sector.

Based on Figure 2 on the next page, it can be deduced that in East Africa, Kenya and Tanzania have made earlier attempts to implement PPPs in the sector while in the greater sub-Saharan region, other countries had attempted to implement similar projects with South Africa as the market leader with at 4 airports under PPPs.

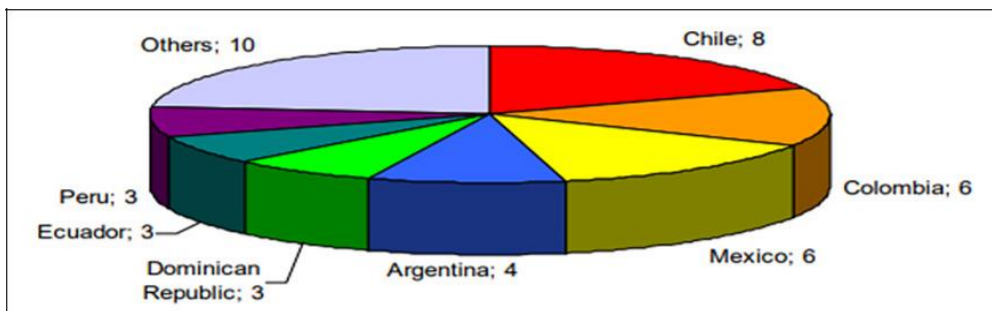
In Figure 3, on the next page, it can be argued that in South America, there has been a considerable up table of PPPs in airports sub-sector with 43 airports under PPP management in the year 2008. Tomová (2008) further notes that PPP airports have also been evident in East Asia and Pacific with countries such as China, Vietnam, Cambodia, Lao, Philippines, and Malaysia having at least 1 airport under PPP with China positioning the largest uptake at the time with 17 airports under PPP. While in the Middle East, Egypt has led its peers with at least 7 PPP airport projects.

Figure 2: PPP Airports in Sub-Saharan Africa



Source: Authors

Figure 3: PPP Airports in South America by 2008



Source: Tomová (2008)

International Critique of PPPs in Transport

Internationally, countries have adopted diverse approaches to determine user charges and to realize revenue targets across various transport PPP concessions. The diversity of approaches to road PPP adoption has made countries experience PPPs in their way. While there exist similarities of experience, differences too exist.

In Europe, the transport sector defines part of the heritage of the concept globally. With origins traceable in Europe with the UK as the earliest adopter of PPPs (Hodge & Greeve, 2003), there is a solid experience that the world can retrieve from such country. However, it is also important that consideration of unique environments under which PPPs are applied to be considered. The success of PPPs in one country may not guarantee success in another due to different dynamic constituents in the environment in which PPPs are implemented.

For instance, in the United Kingdom, Margaret Thatcher's regime is acknowledged as the champion

and origin also argued that while the UK was the initiator of PPPs in transport, the bulk of PPPs in transport have been implemented in developing countries in Asia and Latin American countries (LACs) (Estache et al., 2007). In addition, research on PPPs in transport has focused on topics such as providing infrastructure, toll road management, and transfer of risk, and allocation, types of PPP models. While PPPs in transport have a relatively long history compared to other sectors, some sectors such as energy have more pronounced PPPs (Hodge & Greeve, 2003; Estache, Juan & Trujillo, 2000).

In Africa, the uptake of PPPs in the transport sector is relatively new with traces of 1-2 decades (Nuwagaba, 2019). Hybrid options like outsourcing or contract-ing out have been popular have been implemented under the traditional procurement route and not the pure PPP route. Where PPP attempts have been made still, it is reported that traces of increased efficiency through innovation and cost management consciousness (World Bank, 2016; the European PPP Expertise Centre, 2015). The advantages of innovation notwithstanding have been harshly critiqued as there exists limited evidence to translate such

assertions from mere academic rhetoric or wishful thinking.

While the existing body of literature provides some empirical pieces of evidence on the benefits of PPPs (Nduhura, 2019; Kisitu, 2018; Twinomuhwezi, 2018; Nuwagaba, 2019) from developing country perspectives, literature on evidence of successful concessions in transport remains scarce despite the uptake of PPPs in transport that has lasted over a decade. In transport, PPPs have been promoted by various authors (Khumalo, 2003; Rao & Vokolkova, 2016). The argument behind the promotion of PPPs in transport has been the view that ability enables countries to grow and achieve their aspirations. It is argued that transport enables citizen's access markets, workplaces, and opportunities.

In Nigeria, The Victoria Island – Epe Express Road is commonly known as "Lekki Expressway" is critiqued to have failed as a PPP concession due to lack of stakeholder engagement and approval. It is argued by Ogidi (2014) that the concessionaire Lekki Company limited sought to construct toll gates within a distance that is too close with a distance of 5 kilometers in between that was considered exploitative by road users. As the public threatened legal action, it is argued that the state in line with the UN position on PPPs, constructed alternative routes that may have affected the revenue (Ogidi, 2014).

It is further argued by Ogidi (2014) that the aviation sector has witnessed increased uptake of PPPs in Nigeria but outcomes have not delivered the promise that PPP provides worldwide. Citing Messrs Maevis airport landing fee-collection concession at Murtala Muhammed Airport, Ikeja it is alleged that weak controls in the collection of non-receipted toll landing fees resulted in unaccountable revenue and failure of the PPP project (Ogidi, 2014).

Similar events of disappointment in urban rail transit PPPs have been reported in Europe (National Audit Office, 2009). In the UK, it is argued that one of the contractors out of the three at the Underground Rail Project in London, United Kingdom went into bankruptcy transferring the burden to taxpayers (Iossa et al., 2008; NAO, 2009). While in France, protests over PPPs in urban metros have been common (Iossa et al., 2008), pointing to stakeholder dissent towards PPPs. In Australia, the Cross City Tunnel project went into receivership in 2006 with debts amounting to \$570 million has continued to be

constrained by refinancing constraints. In a similar argument of criticism, Babalik-Stcliffe (2002) notes that while PPPs in other transport scopes are popular and may have delivered results, urban transit rail projects have remained unattractive to award and have been recalled back to the state due to low recovery ratios that lie arguably between 25%-27%.

In the Netherlands, PPPs are deemed to have generally have provided disappointing results (Koppenjan, 2005). However, despite not meeting expectations, some PPPs in public transport are acknowledged to have delivered to expectations such as the A59 motorway (between Geffen and Oss), high-speed train link between the Belgium border, and Amsterdam. The success of PPP projects has been attributed to intensive interaction in the project preparation and planning phase with relevant stakeholders citing Sijtiwende and All-Weather Terminal projects; mapping of opportunities that maximize financial and non-financial profits and tradeoffs for the private investor; having a motivating and convincing project. It is noted that unreliable and multi-headed governments with anti and pro-government leaning administrators and politicians, lack of a systematic way of integrating stakeholder consultation outcomes, too much focus on risk management, and lack of interaction can frustrate the success of PPPs (Koppenjan, 2005).

Such events notwithstanding, it can be deduced that PPPs have been successful in the Netherlands to some extent. Uganda is one of the countries that is planning to implement PP toll road concessions hit a snag as citizens pending attempts to charge toll fees due to the absence of a legal and regulatory framework for charging toll fees. Roads such as the Kampala-Entebbe Express Bypass and Kampala Jinja Express roads are viewed as flagship PPP projects in the transport sector.

In Botswana, PPPs in transport are argued to be delivering positive effects. Micro PPPs have manifested where the state has allowed taxis to operate with income tax exemptions. In the rural setups, licensed operators have further benefitted from subsidies enabling rural communities to access markets, workplaces, opportunities (Rao et al., 2017).

In East Africa, governments have commenced uptake of PPPs in the transport sector. For instance, Uganda has made attempts to embrace PPPs across all sectors (National Planning Authority, 2020; UNRA,

2019; KCCA, 2019). Specifically, the transport sector has witnessed a spike in the interest of PPPs. For instance, at the moment a management concession for the issue and renewal of national driving permits with the Ministry of Works and Transport (MOWT) as the principal while Face Technologies Limited as the operator is operational.

Besides, it has been reported that the lead time for the issue of permits has been reduced from months to 30 (thirty) minutes upon calculation from the time of lodging full application and payment at the facility to issue permits (Face Technologies Limited, 2019, unpublished). While this points to a successful concession with traits of PPPs, in Uganda despite concessions with PPP features the trend has been what projects recognized as PPPs as those that were signed off after the coming into force of

Policy 2010 and Act 2015. One the less, in the confines of PPPs, what have been pronounced as pure PPPs have faced turbulence at inception. For instance, the Uganda National Roads Authority, flagship PPP projects.

PPP Concession Types and Remuneration Strategies of Private Party in Road Transport Sector-Global Experience

Shaul (2010) argues that PPP projects require a revenue stream to pay the charges, which will be a function of the size of the initial investment (typically large), usage, operating costs (typically relatively low), and the cost of finance and the period of the loan. User fees charged must be built while incorporating the lifetime cost such as capital and operating expenses of the project, cost of debt, cost of equity. Various studies have pointed to various types of concessions (Shaul, 2010; Ogidi, 2014; Rao et al., 2016) that can be applied to the transport sector. Rao et al. (2016) provide several types of concession that are popular in the transport sector.

6.1 Toll Concession

In a road concession, the government grants the private sector the right to exploit a right-of-way for a fixed period. It is argued that in such a concession approach, the traffic and toll collection risks are transferred to the private sector and it is a purely private endeavor, with minimal government role that steps aside as a regulator. Rao et al. (2016) note that in the United Kingdom, the M6 Toll Road

has been implemented under the toll concession approach. The concession is terminated after the agreed expiry date. It is noted that the biggest challenge with such an approach has been over-estimated demand that in most cases has made concessionaires financially distressed and insolvent. In other words, the risk of failure to realize demand is borne on the private party.

6.2 Toll and Traffic Guarantee Concession

According to Shan, Garvin & Kumar (2010), it is noted that in a toll and traffic guarantee concession, the contracting party provides figures of estimated demand traffic for the facility to the concessionaire. Under such concession, the contracting authority guarantees to pay the concessionaire for the shortfall in usage demand. This approach is also commonly known as the "cap and collar" (Rao et al., 2016). It is also argued that where demand exceeds forecast, the excess cash generated is transferred to the contracting authority. The design of the concession would also take another dimension where an agreed percentage of the excess revenue is paid either back retained or retained by the concessionaire.

While it is ideal that forecast is adequate, existing literature reveals that it is not the case as shortfalls in traffic demand are always evident. Consistent with this view, it is argued that since bidding is involved, winners usually overestimate the intrinsic value of the returns for the contracting authority resulting in what is termed as "strategic misrepresentation" resulting in the "winners curse" (Thaler, 1988). Despite the value that existing usage patterns provide in estimating traffic demand and modeling potential usage across time patterns, it is argued that overbidding tends to drive optimism and falsification of figures provided by the best-evaluated bidders (Hensher & Goodwin, 2004).

On the other hand, Perkins (2013) argues that the overestimation of user fees could be attributable to existing opportunities to revise user fees or tariffs upwards after signing the contract. While this view is upheld by Somoro et al. (2015), Perkins (2013) points to other factors that render non-realization of estimated demand. This includes; low car ownership, competition on route from the air, rail, or ferries; confused road objectives (not where people want to go); ring roads, beltways; many alternative roads; reliance on future factors,

new land-use developments, or structural changes; greenfield development; local authorities free to change rules; user rather than corporate/government payment of tolls among other factors. It is further argued that the existence and coexistence of cited factors expose concessionaires to demand risk (Bain, 2002).

6.3 Direct Payment Models

Shadow tolls and availability payments. Cited as the most preferred option for structuring and remunerating concessionaire in transport PPP (Perkins, 2013), the direct payment concession models require that the contracting authority or government remunerates the concessionaire for the mobility service provided to individual users of transport facility train, airport or, roads. Despite possession of similar characteristics such as government paying for the user, in the shadow toll, the concessionaire is paid based on user traffic while for the availability payments model, payment is based on output-based performance in concession agreements rather than user demand.

6.4 Design-Build-Operate-Maintain-Transfer (DBOMT)

Also known as an Output and performance-based method and a form of Private Finance Initiative. Jean, Anne & Pam (2012) assert that in this type of concession, the private party undertakes to either build the transport facility and or enhance, operate and maintain its features such as drainage systems, bridges, or road furniture. The M6 toll road in the UK is cited to have been one of the popular roads that were implemented under such concession and remuneration design (Jean et al., 2012). The concession has also been popular in Latin American Countries (LACs) especially in Argentina, where it is revealed that remuneration is based on output and performance parameters agreed by the concessionaire and contracting authority over several years (Shaul, 2010).

In exchange, the concessionaire is incentivized by payment of a fixed retainer or specific amount for deliverables such as repairing old signage, installing new signage, or repair of potholes or kilometers of road maintained and repaired. The model is popular as it relieves the state of the need to offload heavy cash flow in the project as the private party provides the finance upfront. The model is credited

for being highly popular with the political class (Jean et al., 2012).

6.5 Freestanding Project or Concession

In this type of concession the government party and user provide funding for either the construction and/or the service. Jean et al., (2012) note that the Skye Bridge was one of the projects under a similar design. In this context, it is argued that where the Scottish Office paid part of the construction costs and later the Scottish Executive provide a subsidy for users the tolls before ultimately terminating the contract. The London Underground PPP is arguably one of some concessions designed under similar characteristics. In this concession, the public authority, London Underground, pays the private sector partner to upgrade and maintain the infrastructure, in return for a grant from the central government to subsidy users and charges passengers. While such models have enabled the public party to provide affordable user fees, they have constrained public resources and been critiqued as avenues of hiding corruption.

Table 1 on the next page was developed based on a survey of critical success factors (CSFs) from a review of previous studies. We identified patterns of such factors using an approach that focused on a frequency of mention approach. While various authors have mentioned risk allocation, experience of government party, sound legal and regulatory framework, political support, competitive bidding, transparency, and openness, as remain not only key success factors in other sectors with PPP adoption but remain vital PPPs in transport. It can also be deduced that while the frequency of the factors with a frequency of 05 to 13 seems high on the factor intensity scale, it could be because of earlier research on which another current research is built.

We note, however, that while factors such as political environment, legal and regulatory framework, transparent and competitive processes, the acknowledgment of more specific factors such as quality of toll service, flexible of toll fees, average fare per kilo-meter, interconnectivity with multimodal transport, and connection of toll roads, payment options for toll and distance between tolls are emerging CSFs that should be considered in the lifecycle of PPPs in the road and other transport subsectors such as rail, road and water. While the toll fee is an area of debate limited mention is identified. This could be

Table 1: Factors Influencing the Success of Tolls in Transport PPPs Projects

Factors influencing the success of toll or user fees in transport PPPs projects	(2005).aletHardcastle	(2005)Zhang	(2014)Ogidi	(2013)Sala-Tamellova&Muresanovic,Milic,Berovic,	(2010).aletChan	(2016).Lassanli,Yanase,&FajalRomero-Villalba	(2010)Haw&WangGilbertson	(2012).aletNg	(2007)Aziz Abdel	(2014)Rombouts,&ZahovicDominiques,	(2006).aletPauley	(2001)White	(1997)Farrell	(2000)Silva	(2003)Freeman	(2004)IrwinandErhardt	(2004)SerebriskyandEstache	(2005)FagedaandBel	(2005).aletBoardman	(2012).aletJean	(2014)PPIAF	(2004)SerebriskyandEstache	(2010)Yong	CSFoerhina forclationsofnumberTotal
Average kilometer per toll road distance from each other	x	x			x								x	x										05
Developing effective asset management plans for transportation PPP projects				x			x																	02
Location of the road and its connectivity to tourist arrivals, ports, or multimodal transport connections	x	x			x									x	x									05
Connectivity with urban geography	x	x			x									x										04
Stable macroeconomic conditions policies that favor PPPs projects	x	x		x	x									x	x									06
Experience of government agencies in PPPs								x							x									06
Stability of the political environment in the country	x	x		x	x			x	x						x									06
Political will	x	x		x	x		x	x	x				x	x	x									10
Ticket types and fare systems discounts on pre-paid ticketing, systems (travel cards or season tickets), conditions of use, flexible payment options										x	x				x									02
Clear Deliverables, Specifications, and Roles and Responsibilities Specified In The Contract						x		x																02
Penalties for non-compliance						x																		01
The flexibility of design of toll fees (off and peak periods)												x												01
The waiting environment													x											01
Public transport interchange													x											01
Reliability (time-saving and available for use)													x											01
Information provision													x											01
Elimination of competition from roads without charges																						x		01
Toll principles must be defined upfront																		x	x	x	x			04
Vehicles ecological rating																				x	x			02
Broad Level of Risk-Sharing Between the Public and Private Sectors	x	x		x	x		x		x	x	x				x		x	x	x	x	x			13
Government guarantees provided						x																		01
Quality such as compliance with time schedules, transparency, and openness																						x		01
Prices (toll fees)																						x		01
Public/community support				x																			x	01
Safety and performance of the facility				x																				01
Internal rate of return for the private party				x																				01
Offshoots and distance in between tolls matter			x																					01
Total frequency																								81

Source: Review of Literature by authors (2020)

because of the time utility advantage that toll users seem to prioritize above other factors. However, it is important to note that where toll roads enable masses to access social services, the toll fees could

be a major issue for consideration. Emerging in the study is that the success of PPP success in transport is improved when effective asset management plans for transport PPP projects are in place.

7. Conclusion and Recommendations

While PPPs have been met with dissent, the toll roads and other forms of PPPs in transport remain desirable in closing infrastructural gaps across the world. The study notes that despite the value that transport PPPs improves road network, dissent has been routed on factors such as lack of transparency lack of consultation, design of toll fee, transparent procurement regimes, the lack of understanding of PPPs, history of failure, and a mismatch of feasibility from cost-effectiveness and public acceptance.

7.1 The Paper Provides Key Recommendations

Charging toll fees requires an appropriate legal and regulatory framework. This helps to avoid dissent from users of toll road services. The toll fees should be commensurate with the services offers. These include pothole-free roads, security of riders, and reduced traffic.

To encourage more users, sign up for toll roads, the study recommends the need for dynamic pricing. This refers to a practice where tariffs are adjusted based on peak and off-peak hours and days. For instance. during off-peak hours and days, fees could be reduced and slightly increased during peak hours. This would not only attract users to a toll road but offer a balanced flow of traffic. A regulator or contracting authority may be required.

Experience indicates that toll roads are in most cases express or highway roads. The objective of such roads is partly to reduce jams. However, such roads are vulnerable to slow drivers that may contribute to jams. To reduce jams and make drivers drive at an appropriate speed, there is a need to undertake a study of the time expected to be traveled on toll roads taking into account entry time, allowable speed limits at different points of the road up to respective exit points. Once the allowable time is calculated, and contingency provided, then a penalty could be automatically calculated by the system and the client updated so that on the next time of travel.

All countries provide varying dynamics in the environment of PPPs, while this knowledge piece provides great international experience, it is important to note that the experiences shared in this paper be customized to suit the local context of countries that seek to implement PPPs not only in

transport but other sectors like health, education and local government.

By use of payment by cards, the PPP investor can reduce pilferage, the spread of disease with cash contact, while reducing the cost of cash courier service and security, insurance. This can help countries enjoy further benefits of a cashless economy courtesy of PPP arrangements. We note that migrating from physical cash payments can be resisted but providing penalties like surcharges for cash payment can motivate user's adoption of electronic payment methods.

By understanding the applicability of PPPs in public transport and more specifically in road transport, we provide a reduction in limits on the applicability of PPPs which we believe will result in the uptake of PPPs in transport. With such a knowledge, governments can therefore improve mobility of persons and cargo necessary for unlocking opportunities like markets, education, access to healthcare, jobs, and wealth.

Finally, the study provides critical success factors for PPPs in transport. While such CSFs have been popular in other studies, we note that answering the question "who pays" is key in attracting investors for PPPs. For example, the study notes that government, corporate clients' pay models are likely to be more attractive for investors than user-pay models due to risks associated with collection and politics that surround user-pay models. This study acknowledges that PPPs in road transport is not new but what we provide are insights from elsewhere on how to make PPPs deliver returns for citizens, for instance, we argue that like elsewhere that offshoots from toll roads should be incorporated in the design of roads to avoid close placements of tolls. This is likely to safeguard toll user resentment of toll roads and associated political risk as it has happened in Nigeria.

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