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Defining Community Investment in Infrastructure Delivery

Abstract: With the proliferation of crowd technologies and a shift towards local control of infrastructure assets, community investment (including crowdfunding) has become a legitimate financial tool for infrastructure delivery. Community investment is the process by which individuals who benefit from or are impacted by a project choose to contribute or invest financial resources to a project via an intermediary. The methodology for this paper is derived from an extensive and systematic literature review of three fields of study: stakeholder management, public participation, and local investment. The first part of the paper discusses the historical background stakeholder networks and the introduction of community investment in infrastructure delivery. This is followed by an introduction of the four models of community investment: capital cost sharing, municipal bonds, civic crowdfunding, and equity crowdfunding. The last parts of this paper bring in relevant research in other fields to evaluate the different elements of community investment during the infrastructure delivery process.

Key words: community investment, infrastructure delivery, crowdfunding, stakeholder management, public participation, local investment

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Introduction

With the proliferation of crowd technologies and a shift towards local control of infrastructure assets, community investment has become a strategy with a dual role: increasing financial capital *and* social support for infrastructure projects. This part paper explores the phenomenon of community investment and its relevant introduction into infrastructure project delivery. The methodology for this paper is derived from an extensive and systematic literature review of three fields of study: stakeholder management, public participation, and local investment. The first part of the paper discusses the historical background and the circumstances that have led to community investment in local infrastructure delivery. The second part of the paper describes the characteristics and forms of community investment. The third and fourth parts explore several propositions of how community investors could impact stakeholder relations and subsequent project outcomes. The fifth part then addresses the limitations of this work and routes for future research.

Part I: Infrastructure Delivery and Stakeholder Networks

Infrastructure assets, such as surface transportation, water and sanitation systems, and energy networks, serve as the foundation for community development. Because these assets are traditionally provided by the government, engineered and constructed by knowledge experts, and received by communities, there are inherently many different stakeholders involved in the infrastructure delivery process. The dynamics of the stakeholder network can lead to increased conflict and satisfaction in regards to the infrastructure asset; and, therefore can present challenges and barriers for infrastructure delivery (Aaltonen, Jaakko, & Tuomas, 2008; Mei-yung Leung, Liu, & Ng, 2005; Mei-yung Leung, Yu, & Liang, 2013). Consequently, as more stakeholders become part of the stakeholder network, it becomes more important to understand stakeholder relations and their impact on project outcomes.

The complexity of stakeholder relations stems from the identification and management of stakeholders involved in a project. Stakeholder management experts draw on Freeman's definition of stakeholders to create a framework for their research: "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, Strategic management: A stakeholder approach, 2010). Other scholars (especially within the public participation literature) have established two broad categories of stakeholders: those who are responsible for delivering project objectives and those who receive or are impacted by the delivery of those objectives. In regards to infrastructure delivery, Weiwiora et al.'s work organizes project stakeholders into these two groups and labels them as internal and external stakeholders, respectively. Internal stakeholders are defined by their contractual, legal, and financial obligations to service delivery. These responsibilities allow internal stakeholders to have a direct strategic and authoritative role in planning, design, construction, operations and maintenance of projects (Beach, Keast, & Pickernell, 2012). As such, this group of stakeholders is responsible for defining and initiating fair engagement principles with external stakeholders to promote harmonious stakeholder relationships. In contrast, external stakeholders are not contracted with the government or directly responsible for project delivery even though they are intended to be the

primary recipients of (or impacted by) infrastructure services. The figure below shows how Wiewiora et al. categorize infrastructure delivery stakeholders.

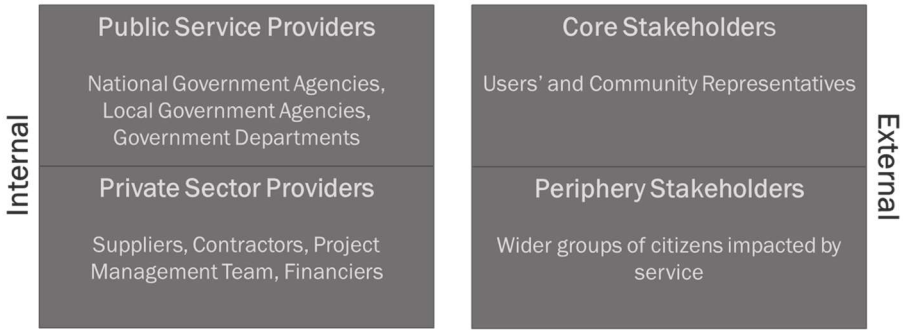

Figure 1: Stakeholders in public infrastructure delivery (adapted from Wiewiora, Keast, & Brown, 2015)

Although Weiwiora et al. is able to define and organize stakeholders within the infrastructure delivery process, stakeholder relations and individual stakeholder's power can fluctuate throughout project phases and in response to national policies that impact infrastructure delivery. Therefore, identifying and categorizing stakeholders is only part of understanding stakeholder relations. The following section shows how individual stakeholder salience has evolved within the context of United States policy.

Evolution of the Stakeholder Network

Over the last 100 years, infrastructure project stakeholder networks have evolved, introducing new stakeholders and giving more power to other stakeholders. Because infrastructure assets are public goods and susceptible to free rider and resource management issues (Ostrom & Ostrom, 1977), governments at the local and federal level have historically taken sole responsibility for infrastructure delivery. As such, United States national policy has elevated certain stakeholder's power through contractual and financial arrangements during infrastructure deliver, thereby altering stakeholder networks. During the first half of the 20th century, federal policies, such as the National Highway System and the Tennessee Valley Authority, gave responsibility to national agencies to deliver large, centralized infrastructure projects. These projects expanded cities and capitalized on the automobile. The urban sprawl and resulting industrial development led to an outcry of concern over pollution that ushered in an era of grassroots environmental and social activism.

The conflict between large scale development and grassroots activism played out in several ways. During the early 1960s, the New York City "master builder" Robert Moses continued to lead centralized, top-down infrastructure delivery. At the same time, sociologist Jane Jacobs began to call for planning practices that focused on city life and stakeholder engagement. The National Environmental Policy Act of 1969 tried to address the unintended consequences of large scale development and the differences between these two approaches to infrastructure delivery. NEPA not only called for more environmental safeguards for infrastructure delivery, it also required external stakeholder, specifically community members, engagement during project planning phases. During the following years, planning experts attempted to address infrastructure delivery issues and incorporate NEPA principles by bridging local, state, and national agencies.

As decentralization trends of the 1990s shifted power away from federal agencies (Oates, 1999), local governments (typically states and municipalities) became more responsible for infrastructure delivery. Unlike their federal counterparts, local governments often lacked the technical know-how and resources for delivering successful infrastructure assets. Therefore, project stakeholder networks expanded beyond governmental agencies and communities (Alm, 2015) to include private companies. Understanding the limitations of local government, the United States government passed the Federal Acquisitions Reform Act in 1996. This policy allowed local governments and government agencies to extend decision-making power to the private sector through innovative contracting practices (Ghavamifar & Touran, 2008). As stakeholder networks expanded to include more private sector providers, external stakeholders such as community members became increasingly alienated during the project shaping phases.

Even though private sector providers have more technical expertise and have been cited for delivering infrastructure efficiently, they are often motivated by profit margins instead of community welfare, and this has become a growing issue among communities as governments hand over project responsibilities (Forrer, Kee, Newcomer, & Boyer, 2007). Misaligned priorities can result in inequitable service provision and unjust tariff increases (Ortiz & Buxbaum, 2008), resulting in backlash from the community (Andres, Guasch, Haven, & Foster, 2008). At the same time, it has become more evident that local governments lacked the necessary insights and resources to represent the preferences of households accurately or act in the best interest of the community (Isham & Kähkönen, 1999). In response to these emerging principal-agent issues, episodes of community resistance that are mobilized by nongovernmental organizations have increased (Rucht, 2002). Figure 2 visualizes how the community as the principal (the end-user and recipient of infrastructure assets) is further removed from the delivery process when more stakeholders are involved especially stakeholders whose values do not align with the community. When more stakeholders are contractually bound to the project, benefit from information circulation, and pursue their own priorities, the original principal actor(s) is vulnerable (Leruth, 2012).

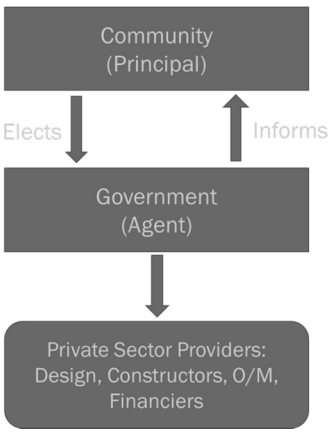

Figure 2: Principal-Agent Framework (Leruth, 2012)

Despite the community's role as the beneficiary (and sometimes as the affected party) of infrastructure assets, the community has a limited role in influencing decisions regarding

infrastructure asset and delivery process. Although the private sector has developed tools to respond quickly to customer needs and deliver better products, infrastructure has lagged behind user-focused strategies (primarily because infrastructure is a long-term, real asset that cannot benefit from rapid prototyping). Because infrastructure, by definition, provides critical services for communities and lasts decades after construction, it is even more important to include the community's voice throughout the delivery process and especially during the project shaping phases.

In an attempt to address stakeholder issues and more specifically the principal-agent issue, government agencies and community-focused nongovernmental organizations (NGOs) have implemented policies and programs to shift the focus of infrastructure delivery back to the community. Public participation processes, once extolled in policies such as the National Environmental Policy Act (Shepherd & Bowler, 1997), are increasing in interest and being enabled by new technology. For example, new crowdsourcing platforms, facilitated by online social networks and increased internet access, have made informal external stakeholder engagement easier than ever before (Brabham, 2010). Similarly to the proliferation of online public participation tools, community investing has gained increasing attention, as online platforms combine crowdsourcing functions and internet payment technologies.

In light of the financial crisis, cities have been struggling to provide adequate and safe infrastructure to meet user demands (Muro & Hoene, 2011). Local government funds have been in decline due to lower property values (and subsequent property taxes). These revenues, instead of being directed towards infrastructure, are being used to support social programs and unemployment services (Office, 2010). Under these conditions, infrastructure projects need financial capital. As such, innovative funding and financing strategies, including community investment, have become attractive options for motivating infrastructure delivery.

The most recent legislation with the potential to increase financial capital for infrastructure and change infrastructure delivery stakeholder networks. As a response to the growing availability of online engagement platforms. The JOBS Act of 2012 was originally passed to regulate the crowdfunding industry and allow external stakeholders like community investors to invest in start-up business ventures. In addition to its intended use for increasing funding and financing for start-up business ventures, cities and forward thinking community organizations are beginning to apply the JOBS Act to fund and finance infrastructure delivery. Therefore, the JOBS Act is also being used to legitimize crowdfunding processes for infrastructure delivery (Farajian, Lauzon, & Cui, 2014). While the Securities and Exchange Commission has started to regulate equity crowdfunding, donation crowdfunding has expanded to the civic sector, allowing local governments and NGOs to take advantage of this new funding mechanism (Davies, 2014a). This policy, along with the proliferation of online crowdfunding and social networking, has reintroduced community investment within the infrastructure delivery process and gives more formal power to community members to influence project delivery.

Part II: Defining a New Stakeholder, the Community Investor

With the JOBS Act, community investors have become a more legitimate stakeholder throughout the infrastructure delivery process. Community investment is the process by which individuals who benefit from or are impacted by a project choose to contribute or invest financial resources to a project via an intermediary. Community investment for a project usually occurs during project shaping phases, prior to construction or design. During these phases, there is a high level of design flexibility and potential for public participatory processes. As such, community investors embrace characteristics of both external stakeholders (as community members) and internal stakeholders (as funders/financiers). Because infrastructure is a physical asset with an intended service area and an impacted population, the community in some ways can be defined by a geographic boundary similar to the geographic area that becomes the focal point of public outreach campaign. Therefore, the dual role of community investing, as a financial *and* public participation tool, presents an interesting new variable in stakeholder relations during infrastructure delivery. However, as of yet, there is little understanding of how this new stakeholder impacts the traditional stakeholder network for local infrastructure delivery.

Community Investment Models

Even though recent United States legislation highlights community investment (via crowdfunding) as a legitimate funding mechanism, there are older forms of community investment that have been used for infrastructure delivery. Community investment strategies founded on the concept that substantial financial resources can be raised by a large pool of individuals who contribute small amounts (similar to the basis of the municipal bond system, philanthropic campaigns, and the federal tax system). Each type of community investment serves a specific purpose and ranges from donations and capital cost sharing processes (where there is no expectation of a financial return on investment) to equity investing opportunities (where investors take on more risk in hopes of receiving an attractive financial return on their investment). As such, each type of community investment meets the characteristics of community investment to a varying degree. The following sections discuss the landscape of community investment strategies that have been used in infrastructure delivery.

Capital Cost Sharing

In developing and emerging market countries, where capital markets are not well developed and donor agencies (including NGOs, development banks, foundations) are highly involved in public service delivery, capital cost sharing is common practice for infrastructure delivery. Prior to becoming involved in project delivery, donor agencies will often require the community to contribute to the project's capital costs. The coordinating NGO that interfaces between the community and donor agency will often procure a specified amount of capital funding from the community through a variety of means. Capital cost sharing is not only restricted to household monetary contributions, and may also include labor and material contributions. Capital cost sharing processes are founded on the principle that initial capital funding increases financial responsibility and project sustainability because of increased community sense of ownership and "buy-in" of the asset. In Isham and Kahkonen's work, it was found that individuals who contribute finances at the beginning of a project have a higher likelihood of paying tariffs during the operations and maintenance of the asset (Isham & Kähkönen, 1999). Additional studies have

shown that household contributions can result in an elevated sense of ownership, in comparison to external stakeholders who do not contribute financially to capital costs (Marks & Davis, 2012). As an example, Engineers Without Borders is one such NGO that requires 5% of capital costs to be provided by the community prior to constructing an infrastructure project, claiming that "community contributions (cash and in-kind) institute a sense of ownership in the beneficiary community and contribute to ensuring project sustainability" (Knight, Smithwick, & Templeton Rivas, 2014). Because of the prevalence of capital cost sharing in developing communities, these communities have spent years developing governance structures for collecting resources from community members, organizing community feedback, consolidating representation, and governing community stakeholders (Khwaja, 2001).

Municipal Bonds

Municipal bonds are another form of community investment used for large infrastructure funds or specific revenue-backed infrastructure projects in developed countries. The municipal bond market in the United States is the most mature among its counterparts. In 1812, New York City was the first to use municipal bonds to issue debt to local constituents for financing a canal project (Cutler & Miller, 2006). Since then, selling bonds has been a financial lifeline for municipalities, counties, and states to finance capital projects and day-to-day operations. Not only have municipal bonds helped finance landmark projects, they have also been used to rally support for government initiatives. During WWII, the United States and United Kingdom ran campaigns to increase circulation of municipal bonds, claiming that it was a citizen's patriotic duty to buy municipal bonds and help finance war efforts. Because of their tax advantages in the United States (including federal income tax exemptions and potential state and local tax exemptions) and perceived safety (because of governmental assurance), municipal bonds have become a common way for Americans to invest their money. Despite these benefits of using municipal bonds, they have a lower financial return than other fixed-income securities such as corporate bonds. And, recently, municipal bonds have lost some of their credibility as cities such as Detroit, Michigan and Stockton, California have fallen into bankruptcy and been unable to meet their bond obligations. As public participation practices have become more popular, several cities are restructuring their municipal bond programs. In Denver, the local government decided increase community engagement by creating "mini bonds," where a typical $20,000 municipal bond was reduced to $500 (Ebi, 2014). The campaign sought to increase community and constituent engagement in infrastructure delivery. Although "mini bonds" increase costs to the city because of high transaction costs and providing an attractive financial return, the campaigns have been very successful at increasing engagement in and around Denver and preventing sales of municipal bonds on secondary markets. During the last campaign round in 2014, $12 million worth of Better Denver mini bonds sold out within one hour of opening the funding portal, and the funds raised are currently being used to build and renovate public works projects within the city (Murray, 2014).

Civic Crowdfunding

Traditionally, infrastructure projects were solicited and prioritized by politicians and agencies and paid for via bond measures and taxes. But recent political inaction has created momentum for individuals to act outside of the traditional infrastructure delivery process. As a result, external stakeholders, both individuals and NGOs, have taken it upon themselves to initiate infrastructure

delivery by requesting donations on online platforms. In some cases, these campaigns are initiated to showcase community support for projects and increase political will for moving projects forward (Davies, 2014a). Although crowdfunding sites have hosted successful entrepreneurial and artistic crowdfunding campaigns (such as Indie-gogo, Kickstarter, and GoFundMe), there has also been a movement to support civic infrastructure like community parks, recreations centers, and other public goods (Davies, 2014b). Capitalizing on these civic movements a subset of crowdfunding platforms like ioby and Citizinvestor formed to specifically fund public goods and civic infrastructure. And, forward thinking state agencies have even sponsored state level crowdfunding campaigns for public goods. For example, Michigan began a statewide initiative through the Patronicity civic crowdfunding platform to increase public participation and community leadership. The state's economic department is providing marketing and financial resources to Patronicity hoping to spark grassroots infrastructure delivery especially in dilapidated cities. Although these platforms help facilitate interaction between government officials, project leaders, and community members, they also provide a legitimate platform for project leaders to motivate change.

Equity Crowdfunding

Equity financing represents the highest level of financial participation for external stakeholders and is the most new form of community investment, primarily because of new legislation that has legitimized the use of crowdfunding. Over the last few years, there have been considerable policy and business model developments in the real estate and energy sectors to include equity crowdfunding for infrastructure delivery. Equity crowdfunding, or otherwise referred to as regulation crowdfunding or crowdfinancing, allows unaccredited investors can invest financially in projects with the expectation of a financial return on investment. Unlike public goods models, in which the government provides an asset that is nonexcludable, these equity crowdfunding models occur in places where the government does not play a direct role in the delivery of the assets and those that benefit directly from the infrastructure service belong to a "club" (tenants of the real estate asset, individuals who are members of the church that receives the solar panels, etc.). Because these models are for excludable infrastructure assets, there are a specific set of users that benefit from the service and can be charged a user fee for receiving such a service, thus creating a steady revenue stream for repaying initial investments. Using this model, third party providers, such as FundRise and Mosaic, repackage financing deals and allow community members to invest equity. This is made possible for several reasons. Medium-sized projects have a more difficult time finding investors because of the scale of such projects, for solar energy crowdfinancing. In most cases, the crowdfunding platforms acts as the primary equity investor and then divides their equity ownership into smaller shares to sell to individuals. Therefore, the crowdfunding platform absorbs the transaction and syndication risks instead of the project developers. These models are facilitated with the JOBS Act and subsequent SEC rulings in the United States.

Despite the differences between these community investment types, each model serves as a financial *and* public participation tool. To serve both of these roles, each community investment model has an intermediary (in some cases it is the crowdfunding platform), provides and receives knowledge, and involves a monetary transaction. These factors work together to expand stakeholder network and increase power for certain stakeholders, including the intermediary.

Additionally, these factors provide opportunities to close the gap between what internal stakeholders think service users (external stakeholders) want and what service users really want. Therefore, it is speculated that community investment provides a more direct route to influence project outcomes. As such, it is important to consider the motivations for involving community investment and understand related strategies for aligning project goals and objectives. The following section shows three lenses for better understanding the implications of community investment.

Part III: Existing Theory on Managing Community Investors

Community investment elevates a new stakeholder throughout project delivery processes, especially during project shaping phases where decision making is most flexible. Therefore, understanding the effect of community investment also means understanding the role of the traditional stakeholder network. I consider three lenses (stakeholder management, public participation, and local investment), to better understand and contextualize community investment within the stakeholder network. The stakeholder management literature discusses how identifying and managing stakeholders can achieve desired project outcomes. The public participation literature considers how internal stakeholders introduce policies and procedures for facilitating local knowledge exchange with community members and other external stakeholders. And, the local investment literature looks at how the presence of money can increase stakeholder salience and legitimize knowledge exchange.

Stakeholder Management

The stakeholder management literature offers a perspective for identifying and managing new stakeholders within the stakeholder network. There are many frameworks that classify stakeholders, but all involve a relational perspective in which a stakeholder's identity is based on how they interact with others and are perceived by others. For example, Mitchell and Brown's framework provides a method for identifying stakeholders (based on elements of power, urgency, and legitimacy). Once this framework is developed stakeholders can predict other stakeholders' behaviors and managers can more effectively communicate, organize, and mitigate stakeholder issues. Other stakeholder management scholars consider a two dimensional framework, in which each stakeholder is identified and managed based on their influence over decisions and their agreement or disagreement with a decision (Bourne & Walker, 2005; Feng, Crawley, Weck, Lessard, & Cameron, 2012). Therefore, when a new stakeholder, like the community investor, joins the stakeholder network these frameworks can be utilized.

For the most part, these frameworks look at levels of power/influence, legitimacy, and volatility. Once such factor that predicts stakeholder behavior is past experience and history with other stakeholders. Many times, internal stakeholders have to work together to make decisions on behalf of external stakeholders. In terms of building infrastructure, these decisions include location of asset, selection of operations and maintenance contractors, and price of service. When these stakeholders have institutional knowledge about the community in which they are working and have built relationships with other internal stakeholders it becomes easier for them to navigate unexpected or difficult situations during infrastructure delivery (Kasperson, Golding, & Tuler, 1992). And, in the case where internal stakeholders have repeatedly worked with the community,

internal stakeholders can make decisions that reflect community wants and needs without continued engagement with external stakeholders (Tsai, 2007). Therefore, the level of internal stakeholder expertise can present opportunities for community approval or dissent (McAdam, Tarrow, & Tilly, 2008; Olander & Landin, 2005; Ortiz & Buxbaum, 2008).

Community investment in infrastructure projects requires experienced internal stakeholders to manage community expectations and the stakeholder network throughout the project phases. Providing more opportunities for the community to engage with project planning and design process can offer great insights; but, at the same time, it can also elevate the community's voice (McAdam et al., 2008). As the community gains greater power and legitimacy (increasing their stakeholder influence), internal stakeholder conflicts and accountability issues might be exposed. In projects without public participation, it is easier for the internal project stakeholders to keep certain information confidential. Because internal stakeholders establish processes for engaging other stakeholders in infrastructure delivery and are most responsible for making project decisions, they hold a lot of power when it comes to information dissemination and process transparency. When these stakeholders have institutional knowledge about the community in which they are working and have built relationships with other internal stakeholders and external stakeholders it becomes easier for them to navigate unexpected or difficult situations during the lifecycle phases. These relationships, which are discussed in multiple bodies of theory as the source of trust (Kasperson et al., 1992) and relational contracting, can more easily mitigate issues. And, in the case where internal stakeholders have repeatedly worked with the community, internal stakeholders are more attuned to community wants and needs (Tsai, 2007). But, in cases where public participation plays a stronger role during project shaping and the community is provided more resources and opportunities to engage with internal stakeholders, there is inherently more transparency with the process and access to previously covert information. Leung speaks of this at length in regards to stakeholder relationships with the media and the ability for experienced stakeholders to limit negative publicity (Mei-yung Leung et al., 2013). In particular, Leung discusses the importance of experienced stakeholders and their ability to quell conflict and stakeholder anger prior to media engagement. Stakeholder networks are dynamic and depend upon the working relationships between internal and external stakeholders. Therefore, when trying to understand how community investment will impact stakeholder networks, these elements should be considered in detail.

Public Participation

Public participation has increasingly been used to increase support for projects by involving users and community members in decision making processes and knowledge exchange. Because community investment is used for similar reasons to quantify project support, it is important to understand the nuances of public participation. Public participation efforts expanded under Sherry Arnstein's work and research in the 1960s, which provided a framework for identifying and evaluating public participation practices. Her "ladder of public participation" categorizes external stakeholder involvement from manipulation to citizen power for the purpose of understanding community involved decision-making (Arnstein, 1969). At the lower end of the ladder, public participation practices look more like education campaigns meant to attract and entice external stakeholder support. As Arnstein makes her way up the ladder, interaction between internal and

external stakeholders becomes a two-way dialogue. And, the topmost tier of the ladder represents public participation practices that allow external stakeholders to make project decisions without internal stakeholder involvement.

Rowe and Frewer, who have developed the most comprehensive evaluation criterion for public participation practices, reference Arnstein's work and discuss how the benefits of public participation can only be achieved once there is true dialogue between stakeholders (Rowe & Frewer, 2000). Other practitioners and academics who have referenced Arnstein's framework continue to speculate that good public participation practices lead to knowledge exchange, resource use efficiency, community ownership, demand certainty, commitment to operation and maintenance, and increased transparency, ensure fairness and justice, and improve decision-making legitimacy (Babajanian, 2011; Carpini, Cook, & Jacobs, 2004; Dongier et al., n.d.; Gebregziabher et al., 2013; Innes & Booher, 2004). But, achieving these results is dependent upon internal stakeholders who plan and initiate public participation practices. Even with a plethora of available public participation practices, internal stakeholders rarely engage the community in early concept-stage decision making. And, when they do, their practices lack process legitimacy (Beierle & Cayford, 2001). Therefore, community investment incorporates good public participation practices such as two-way dialogue (knowledge exchange) and representation, can provide opportunities to achieve the speculated benefits of public participation.

Because community investment aims to achieve similar results as public participation, it is important to consider best public participation practices for involving external stakeholders. For example, representation of external stakeholders is a key component of public participation practices. Within communities where different factions do not share similar values or motivations, representation through concerted public participation practices is important (Vaughan, 1993). Historically, the absence of underserved groups during the planning process has led to conflict during other project phases (Kasperson et al., 1992). And, lack of concern among internal stakeholders for achieving external stakeholder representation can create social distrust among community stakeholders and jeopardize the future of the project. Other implications of representation like "professional activism" (Campbell & Marshall, 2000) can prove to be an even greater issue. "Professional activism" or self-selected participation is used to define the presence of individuals who monopolize public meetings, voice the opinions of niche community groups, and disproportionately and inequitably influence decision-making. Therefore, lack of representation can lead to lack of legitimacy of public participation processes. And, without legitimacy, it is difficult to continue to engage external stakeholders throughout infrastructure delivery. Although representation is one public participation practice that can legitimize projects, there are other practices that increase relations between internal and external stakeholders and lead to sustainable projects. Because community investment is used for participatory means and to gain approval for a project, understanding these implications is important.

Local Investment

Community investment, as a financial tool, increases knowledge exchange and accountability throughout project delivery. The local investment literature brings to light how investors within a geographic proximity to a project can influence the perceptions of a project. Previously, academics

have discussed the involvement of local investors as central to asset pricing mechanisms. In the case of shareholders, those who are geographically closer to the asset can more accurately assess the value of the asset. This occurs because these shareholders have access to better information regarding hidden benefits, including social and environmental benefits, that do not necessarily show up through a formal audit (Bae, Stulz, & Tan, 2008) and/or have better information about impending local social, political or economic changes that could negatively impact the value of the asset. This is especially helpful for assets that are difficult to value, such as infrastructure (Bernile, Kumar, & Sulaeman, 2015). It has also been shown that investors who are local to their investments (such as community investors) provide more timely access to value-relevant information, social networks within the community and pricing information (Bernile et al., 2015; Shive, 2012). Other empirical studies have reinforced the assertion that local investors can accurately price assets because of their local networks and intimate knowledge of asset performance (Shive, 2012). The local investment literature references the importance of local knowledge in project decision making (Malecki, 2000), especially when internal stakeholders are not familiar with a specific community. Therefore, local investment creates a path for local knowledge exchange. At the same time, local investment increases "buy-in" from end-users and an expectation of a return on investment (Duncan, 2004).

Together, these literatures provide an understanding for how stakeholders relate to each other during project delivery. The dual role of community investment adds an additional level of complexity within the stakeholder network. On one hand, a stakeholder who brings financial resources is provided intimate knowledge of the asset, continuous updates of the asset's performance, and in some cases voting power to effect project decisions. On the other hand, a stakeholder who is part of the public participation process is able to provide contextual knowledge of the community and is managed as an end user of the asset. The complexities of understanding the motivations, perceptions, and actions of community investors can be addressed through piecing together past research, both grounded and theoretical. Therefore, looking at each community investment model in light of these three literatures provides a few propositions for how community investment can impact projects. The following section discusses aspects of community investment and how they create the dual role and a platform for engagement during infrastructure delivery.

Part IV: Community Investment as a Vehicle for Engagement

Each community investment model operates under different circumstances and provides external stakeholders with varying levels of engagement within the stakeholder network. For example, equity crowdfunding has a stronger financial component, while civic crowdfunding has a more participatory component. Despite the differences between the community investment models, there are key similarities: knowledge exchange, the presence of an intermediary, and financial contribution.

Knowledge Exchange

During the process of community investment, local knowledge exchange becomes a critical part of the interaction between traditional internal stakeholders and community investors. Internal stakeholders are able to communicate the desired objectives and goals for a project. And, in return, external stakeholders at the very minimum can choose to be community investors and approve or

disapprove of the project by contributing money. The most important part of this knowledge exchange, is the potential for internal stakeholders to gain local knowledge to make better decisions. Malecki defines as the privately-held knowledge and shared expertise that transfers only through networks of interactions (Malecki, 2000). Local knowledge exchange between stakeholders allows for user feedback to inform the decision making process, especially in terms of fee increases, maintenance plans, project updates, and crisis planning. In the absence of local knowledge exchange, internal stakeholders could face increased conflict with external stakeholders during project construction and operations/maintenance (when community members are first exposed to the realities of infrastructure delivery). This process of knowledge exchange provides more information and transparency of the project. And, in doing so provides more resources for community investors to act. At the same time, knowledge exchange, if stakeholders pursue legitimate public participation practices, can mitigate collective action issues that may arise. Therefore, knowledge exchange becomes a balancing act for stakeholders. If too much information is disclosed without addressing stakeholder concerns, there is a chance for conflict. And, if no information is released and there is aggressive stakeholder engagement then engaged stakeholders may become apathetic in the future.

Intermediary

Secondly, community investment processes involve an intermediary that organizes the community investment campaign and serves as the connection between traditional internal stakeholders and the community investors. In many cases, community investment involves an organization or individual who dedicates time to disseminating project information, contacting potential investors, and creating the system, process, and tools for collecting money, similar to how fundraising campaigns are managed. The intermediary becomes a key point of contact for community investors. As part of their responsibilities, the intermediary screens information and reorganizes it in a way that is manageable for community members to understand. In these cases, Latham refers to intermediaries as infomediaries (Latham, 2003). Intermediaries are not only crucial to knowledge dissemination, they also play a role in mediating resources for the stakeholders they represent (Pajunen, 2006). The intermediary is able to consolidate individual feedback and provide a direct conduit for knowledge exchange and in doing so can facilitate conflict resolution.

The presence of an intermediary provides external stakeholders with additional legitimacy within the stakeholder network. And, in turn, the more external stakeholders and community investors there are, the more power the intermediary has within the stakeholder network (Friedman & Miles, 2002). As both community investors and intermediaries gain legitimacy within the stakeholder network, they can more easily vocalize their support or opposition to project elements. Additionally, the intermediary structure creates an avenue for continued relations between internal and external project stakeholders for a prolonged period. For infrastructure projects, in which there are several phases and potential for changes to fee structures and project scope, the intermediary serves a crucial role for community investor inclusion throughout a project's lifecycle.

Financial Contribution

Thirdly, the presence of a financial contribution via community investment increases accountability for internal stakeholders to deliver the proposed project. Although community investment varies widely, the involvement of money increases a community investor's expectation that the proposed project will be delivered. At one end of the spectrum, equity crowdfunding has specific financial rules that reflect this expectation, such as expected repayment schemes and expected investment return. Additionally, equity financing comes with other tools for increasing internal stakeholder accountability, including ownership rights in which the community investor has access to financial documentation and voting rights conditional on the terms of the specific equity investment. In general, equity financiers have more "skin in the game" because they own a portion of the venture, are in a "first loss" position relative to lenders, and are usually the last to receive a financial return on their initial investment (increasing their level of risk). Municipal bonds, as a form of community investment, also have financial rules that ensure a financial return on investment. And, although there is less risk with this type of investment, there are collective action clauses that formalize the accountability process between internal stakeholders and community investors.

Civic crowdfunding and capital cost sharing are community investment types where there is no financial return on investment (ROI). Despite the absence of a financial ROI, there is considerable literature that discuss the implications of donations. Duncan argues that the expectation of the donor receiving a good or service promised by a project sponsor (also considered the intermediary) is qualitatively similar to the expectation by an investor of a financial return. Similarly to the expectation of a financial return on investment, donors "invest" in projects because they either expect public service delivery or private consumption satisfaction (Duncan, 2004). Fehr and Hishigsuren take the relationship between donors and return on investment even further by stating that donations can be thought of as equity investments because equity investments are not ensured a financial return on investment (unlike debt investments with lower risks and collective action clauses); and, neither are donors (Fehr & Hishigsuren, 2006). Therefore, both types of investors have similar risk levels and may influence the infrastructure delivery stakeholder network in the same way. Therefore, in all cases of community investment there is an expectation that the proposed project will be delivered, and community investors have an inherent obligation to hold internal stakeholder accountable.

Together, these three factors elevate the role of the community investor within the stakeholder network by providing additional resources (knowledge), a common motivation, and a mobilizing platform to interact with the stakeholder network. Resources, motivations, and mobilizing platform are akin to the drivers for collective action movements (McAdam et al., 2008). Historically, traditional internal stakeholders have tried to limit the involvement of a large and unpredictable stakeholder group and potential collective action issues. But, with recent trends in local infrastructure financing and a shift towards public participation processes in infrastructure delivery, there has been less hesitancy to initiate community investment campaigns.

Part V: Addressing Research Limitations

Community investment is a tool that has not yet been explored. Therefore, this research and the framework discussed throughout this article seek to expand the conversation of what community investment means for infrastructure delivery. The following section details a few limitations of this analysis and for potential future research.

Firstly, the field of community investment is narrow and there is limited theoretical understanding for the motivations, barriers, processes, and management of community investors, as new stakeholders in infrastructure delivery. To provide a strong theoretical background for the model, I draw on a diverse set of literatures, including public participation, construction management, finance, sociology, and corporate stakeholder management. Therefore, through extensive literature review, future comparative case studies with multiple units of analysis, and a market analysis of community investment, there are several sources of information and analysis that can be cross-referenced and validated to provide a more complete picture of the phenomenon of community investment. To ensure that the research components complement and reinforce the findings, there are multiple cross-overs between data collection sources and application to methodology.

Not only is the literature surrounding community investment limited, there are also a small pool of potential cases to study because of the nascency of the field. The model of community investment that has the most cases and projects is the capital cost contribution model. These projects have a longer timeline and local community management that provide a clearer path to understand the relationship between up front community investment and project outcomes. Although municipal bonds have a strong history within the United States, this form of community investment has traditionally not had a clear relationship between individuals who invest and project outcomes because of project complexity and scale. "Mini bonds" programs offer a new perspective for considering community investment in municipal bond dealings, but these programs are few and far between. With the JOBS Act, the dual role of community investment is becoming more closely aligned, in which the presence of an intermediary, knowledge exchange, and financial contribution clearly connects an individual with a project. With the nascency of projects that utilize the JOBS Act, there is a need to utilize qualitative methods to better understand the phenomenon within cases and between cases at a micro level.

Additionally, the extent to which this framework can be applied to all types of community investment models is unknown. There are not only differences between the financial and contractual arrangements in these models, there are also differences between types of infrastructure and the scale of these projects.

The theory I use draws upon empirical and theoretical studies that measure the impacts of relationships between external stakeholders and internal stakeholders. With renewed interest in community investment and recent policy changes, there is a need to better understand how stakeholder networks will change when community investment is used. A suggested future research agenda includes: exploring the context and factors in which community investing can be used; identifying implications for community investment; understanding the perceived influence

of community investors and community investors' perceptions; and evaluating how community investment can affect project outcomes.

Conclusion

Throughout this paper, I bring together three sets of literatures to help create a framework for understanding community investment in infrastructure delivery. The first, stakeholder management, explores the identity, influence, and relationships between stakeholders through project phases. The second, public participation, looks at external stakeholder's, specifically the community's (or end-users'), involvement in project planning to influence stakeholder relations and project outcomes. Several researchers have brought together these two sets of literature, but they have not addressed the possibility of a stakeholder that has attributes of both an internal and an external stakeholder—i.e., community investors. Therefore, the third local investment literature is related to different categories of investors, and thus highlights the impact local investors have on project outcomes.

The framework for understanding community investment in local infrastructure set forth in this paper begins to explain how community investors, with their unique, dual set of stakeholder characteristics, could potentially influence governance in the stakeholder network and, hence, project outcomes. The author plans to conduct case study research that will further flesh out our understanding of how community investment, as a new form of public participation, impacts stakeholder relations and resulting project outcomes during local infrastructure delivery.

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