Neighbourhood effects and household responses to water supply problems in Nigerian cities

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Abstract

Between 1990 and 2004, Nigeria's urban population jumped to nearly half the national population, while access to improved sources of water in urban areas dropped by nearly 15 per cent during the same period. This paper presents preliminary results on the relationship between water supply, neighbourhood characteristics, and household strategies in response to dissatisfaction with water provision as reported by 389 respondents in 10 neighbourhoods in Lagos and Benin City, Nigeria between October 2007 and February 2008. In this paper, a conceptual model of consumer demand for water is used, based upon Hirschman's exit, voice and loyalty (EVL) framework. The model explicitly factors in the quality of water provision and variables at the household and neighbourhood levels that could affect perceptions about quality and the strategies that households use to cope with inadequate public services. Preliminary results show that reported household strategies to secure water are affected by community-level factors such as the range, cost, and quality of water supply alternatives, as well as neighbourhood composition. Furthermore, the percentage of urban migrants and households that live in rented flats in a neighbourhood seems to be associated with the use of exit strategies (as opposed to voice) in response to problems with their primary water supply.

Keywords: water supply, service delivery, neighbourhood, exit, voice and loyalty framework, inadequate public services, Lagos, Benin, urban households.

Disciplines: Public management and governance, water studies, sociology, social psychology, urban planning and African studies.

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Introduction

Africa continues to urbanize faster than anywhere else on earth. The region's annual urban growth rate has been averaging 5 per cent each year for over two decades. By 2030, half of the continental population is projected to live in cities (UN 2006). This urban growth has been accompanied by the increasingly documented rise in abject urban poverty, characterized by city residents who lack land tenure, quality housing, access to safe water, and adequate sanitation, among other municipal services and infrastructure (UN-Habitat 2003). As Africa's most populous nation (140 million people) with more than 54 per cent of the nation living under the international poverty line of $1USD (World Bank 2008) and at least another 20 per cent living on less than $2USD per day,[1] the case of Nigeria illustrates the critical challenges facing planners and policymakers in Africa. Between 1990 and 2004, Nigeria's urban population jumped to nearly half the population, while access to improved sources of water in urban areas dropped by nearly 15% during the same period, as measured by the WHO/UNICEF Joint Monitoring Programme (JMP).[2] The decline in access to water in Nigerian urban areas is striking, but even more critical is the information not reflected in these numbers.

The JMP defines access to water at the household level by the type of source and distance to reach it (measured in minutes). Statistics are also broken down by urban and rural areas. This definition of access, as well as the urban vs. rural dichotomy, is useful for cross-national and within country comparisons across regions. Hence, such figures are used as indicators by national governments and international agencies. However, these data often hide deep disparities within metropolitan areas. In a given city, household sources for water and sanitation services vary, whether by residential location within the city, proximity to the piped infrastructure, household socioeconomic status, residence in blighted areas where land tenure is questionable, and population density (leading to overcrowding and excessive demand). Moreover, faced with limitations in water supply and sanitation services, increasing numbers of impoverished urban residents are forced to provide these amenities for themselves. This

[1] Despite the continued use of national poverty lines and yardsticks of absolute poverty based upon the $1 or $2 USD per day standard, it is widely acknowledged that such income or consumption-based measures do not adequately capture the full scope of poverty. The vast literature on the nature of poverty and how to measure it, much of it fueled by Amartya Sen's initial work on famine and entitlements in 1981, has given rise to new concepts such as relative deprivation, vulnerability, social exclusion and even adaptive capacity. For good summaries of these different conceptions of poverty see Wratten 1995; Moser 1998.

[2] Improved sources include covered wells, boreholes, and piped connections.

often occurs in ways that have both public health and environmental impacts, such as the spread of contaminants from hand-dug wells in Lagos that also affect the piped water supply (Abiodun 1997). Additionally, static, expert-derived definitions and measures of access fail to consider the multidimensional nature of inequality in service delivery. Such indicators can obscure how citizens themselves define their own access and how their perspectives shape local demand behaviour and responses to government policies, which in turn affect the local provision of services. Some argue that an expanded definition of access is required that includes whether water services are adequate (defined as safe, sufficient, reliable, affordable and available) (Tipping 2006).

All of these factors, some of which are subjective and can only be determined locally, are crucial to health and productivity, and could serve as the basis for defining and evaluating access at the local level. To address this problem, the question becomes what analytical approaches can be used effectively to understand urban deprivation through an expanded definition of access to water services? In this paper, a conceptual model of consumer demand for water is used, based upon Hirschman's exit, voice and loyalty (EVL) framework. The model explicitly factors in the quality of water provision and variables at the household and neighbourhood levels that could affect perceptions about quality and the strategies that households use to cope with inadequate public services.[3] This paper has two goals. The first is to show how an EVL-based model can help contribute to a better understanding of household choices and strategies to cope with inadequate provision of water services in the context of urban water markets. The second goal is to explore the potential for a more comprehensive and locally relevant measure of access that encompasses the dynamics of how social hierarchies affect the supply and demand for public services in urban areas of Nigeria.

Preliminary findings are presented from a subset of 389 households from a recent ethnographic household survey conducted in 18 neighbourhoods in the Lagos and Benin City metropolitan areas.[4] The data shows that reported household strategies to secure water

[3] Two neighbourhood-level variables are used here — housing type and migration status. Housing and migration issues form part of a larger understanding of social factors that contribute to urban deprivation, and this paper hypothesizes that they would affect household strategies to obtain water. The full study includes a full-range of variables, which will be controlled for to test the significance of the relationships evident in the data thus far.

[4] The metropolitan area is defined as the core cities (Lagos Island, Lagos Mainland, Benin City, and surrounding contiguous built up economic area that have become urbanized.)

are affected by community-level factors such as the range, cost, and quality of water supply alternatives, as well as neighbourhood composition. Furthermore, the percentage of urban migrants and households that live in rented flats in a neighbourhood seems to be associated with the use of exit strategies (as opposed to voice) in response to problems with their regular water supply. The full study contains additional parameters that will be incorporated into this analysis. Additional factors include the level of household investment in water supply, use of alternative sources, neighbourhood conditions, and perceptions of supplier responsiveness. This information could be important to planners and policymakers in the water sector given that access to water is a function of both supply and demand. A model that can incorporate both and assess local variation in accessing water within metropolitan areas has the potential to help decision makers and stakeholders improve individual and population access to basic services in rapidly urbanizing African nations such as Nigeria.

By gathering empirical evidence for local definitions of access and factors affecting civic engagement around basic services, this study is responding to summary statements from recent global development reports such as the 2006 UN Human Development Report, 2004 World Development Report, and the 2003 UN Human Settlements Report, all of which have finally expressed the view that meeting basic human needs is not only about technical and financial considerations, but are also the consequence of political power relations and social inequality. In the next section of the paper, both cities are described in the context of rapid urbanization and water provision in Nigeria. This is followed by a description of the methodology used for collecting data and a discussion of the conceptual framework used in designing the study. Following this, the main findings are summarized regarding water sources used by households in the study area, significant problems experienced with water and household strategies adopted in response, and how these responses differ by residential location. The conclusion addresses the potential for these findings to help us understand how neighbourhood level factors in the face of rapid urban population growth contribute to processes of socioeconomic deprivation in Nigeria and, more generally, in the Global South.

Rapid Urbanization and Water Infrastructure in Lagos and Benin City

Approximately half of Nigeria's population now lives in cities. During the ten years from 2000 to 2010, the country's urban population will have grown by another 25 million people (UN 2007). While the urban

population has been increasing, WHO/UNICEF Joint Monitoring Programme statistics on urban access to improved sources of water show a dramatic decline from 80 per cent to 67 per cent coverage between 1990 (when monitoring began) and 2004 (the most recent year for which data is available). The two metropolitan areas selected for this study are among the ten largest urban agglomerations in the country, with Lagos being the largest overall. Both areas are experiencing tremendous population growth with large portions of the population securing household water supply outside of the formal piped water network. Among the six regional divisions in the country, both the South West (which includes Lagos) and the South-South (which includes Benin City) face large challenges in meeting household water needs. According to the 2003 Nigeria Demographic and Health Survey, people who live in the South-South region face the longest distances to their primary source, with less than half (45.8 per cent) of the population living within 15 minutes of their primary water supply. Both regions have the lowest percentage of residents with water piped into their residential plots (NPC and ORC Macro 2004).

For Lagos, the commercial capital of Nigeria, despite the city's location in a relatively wet region by hydrological standards, water supply has not matched the pace of urbanization. Lagos has grown from an indigenous town of 5000 in the late 1800s to a multiethnic, multinational metropolitan area of over 9 million inhabitants.[5] The UN projects the city's population will grow to 24 million by 2020, when it would become the third largest such urban agglomeration in the world. Eighty-five percent of the population of Lagos state resides within the metropolitan area, with only half able to access the piped water infrastructure. Although in 2003 the state passed a law that mandated the Lagos State Water Corporation supply potable water to the entire population, public water supply at the time only met 40 per cent of demand (Lagos Water Corporation 2003). There are persistent problems with power supply, aged infrastructure, and insufficient capacity in the main treatment works throughout the state. These problems are compounded by under-investment in repairing the existing network and extending the main trunk lines into new settlements as the city has expanded, which has led to illegal tapping in some areas, all of which affect pressure and reliability to those who do have formal piped household connections. This means

[5] This population figure is based upon the provisional results of the 2006 census. The figure, however, is politically disputed by Lagos state officials, who cite their own figures and other population surveillance showing a figure of 12 million inhabitants or more. Many recent publications on Lagos continue to use projected population vs. the census results.

that nearly everyone in Lagos uses multiple sources to meet their daily water needs.

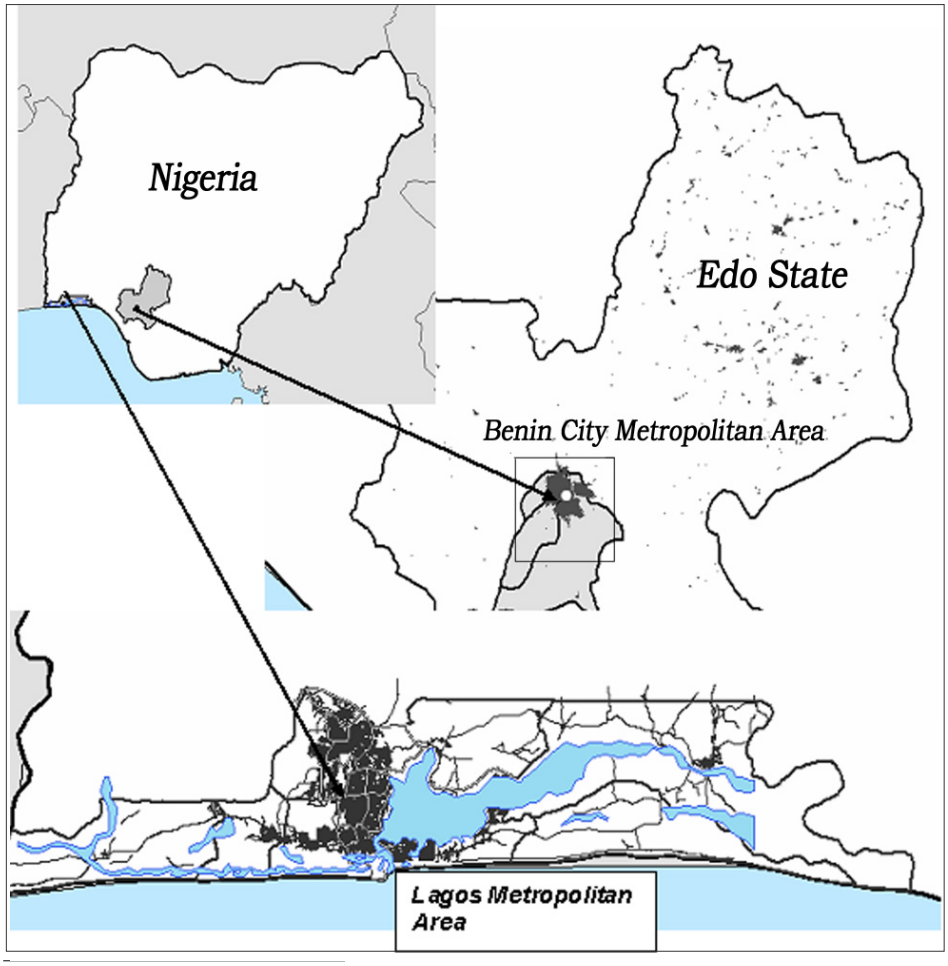
Benin City is the capital of Edo State in southern Nigeria. Edo State is considered to be one of the more homogenous states in Nigeria, given the cultural and linguistic affinities that exist among the various groups in the state. Although many trace their ancestry to the ancient kingdom of Benin, the city has a somewhat more diverse mix of inhabitants, serving as a central transit point in the South West/ Delta region of the country. The state was created in 1991 out of the former Bendel State, one of the oldest political entities in Nigeria, having started out life as the Midwest Region in 1963. Since the mid-1960s, urbanization in the city has expanded beyond the traditional boundaries of the city that stretch to the Benin and Ikpoba rivers (Erah et al 2002). Along with urbanization has come urban environmental problems, such as the increase in flood-prone areas from 4 to 45 by the late 1980s (Odemerho 1988, cited in Odemerho 1993). Although officials interviewed in 2005 cite higher figures, population has grown to nearly 1,1 million with more people coming into the city or living on the outskirts in areas with the least water service. Water supply and sanitation infrastructure has been unable to keep pace with this population growth. The municipal water supply system, which uses surface water from the Ikpoba River, serves as the primary source of supply to about 30 per cent of the city (Erah 2002). For the rest, access to water comes from private boreholes or directly from the Ikpoba River.[6]

In both cities, the problem of water supply is exacerbated by power shortages and infrastructure deterioration. In Benin City, the absence of complete documentation on the city's piped water network has left portions of the city without access to the municipal water system for years. Because water provision has not been a high priority action item for state officials, water provision is hindered by financial problems. City officials cite the lack of funds to purchase fuel to run generators during power outages as a problem. Planners are also confronted with limited data on the region's hydrology and private water systems (Odemerho 1993). Like Lagos, there has been explosive growth in the number of households who have installed private water systems utilizing groundwater, much of which is contaminated (Erah

[6] According to a number of respondents in Benin City, collecting river water was the main source of water for most of those without access to the piped supply up until about five years ago, when the use of private boreholes in the city became widespread. Although urban boreholes have their own environmental, safety, and social problems, the fact that most no longer face the risk of drowning in the Ikpoba River—a frequent occurrence our team was told—makes boreholes a popular substitute for the lack of a regularly functioning municipal supply.

2002). Some of these households, in turn, sell water to neighbours. The past few years have given rise to sales of "pure water," sold in sachets for the equivalent of 100 Naira/litre (l) (5 Naira for a 50 ml bag), 2000 times more expensive than tap water. [7] As public concerns about the quality of 'pure water' have increased, producers in the industry have come under intense scrutiny by the National Agency for Food and Drug Administration and Control (NAFDAC), which has become increasingly aggressive about regulating production and sale of packaged water.

Figure1. Area of Study. Source: Maps by Charisma Acey, 2008. Data Source: 3dTechnologies, ESRI



[7] 1 Naira converts to just under .01 USD.

Methodology

Data for this paper derives from a multistage cluster sample of 389 male and female household heads (226 in Lagos and 163 in Benin City). As part of the author's dissertation field work, face-to-face ethnographic surveys were conducted between October 2007 and February 2008.[8] Work in country was done in collaboration with the University of Lagos and the University of Benin, along with two local non-governmental organizations (NGOs) involved in the water sector — Pan African Vision for the Environment (PAVE) in Lagos and Koyenum Immalah Foundation (KIF) in Benin City. Staff of each organization helped with the recruitment and supervision of enumerators and in carrying out the selection and mapping of enumeration areas. Sampling was done utilizing Nigeria's 2006 census data and the master plans of both cities.

The first stage of the survey involved using census and GIS data provided by the Nigerian-based company 3d Technologies to create a map of the enumeration area, which included the 16 local governments of the Lagos Metropolitan Area and the three local governments of the Benin City Metropolitan Area (see Figure 1). Using this map, the master plan, and other available data, the selected local governments were then categorized by density and proximity to the piped water infrastructure.

This created four categories. In Lagos, one local government was selected from each category for a total of four local governments. In Benin, all three local governments that make up the urban agglomeration were included to allow for comparison between local government characteristics in a similar way as in Lagos. Due to resource and logistical constraints, 18 neighbourhoods in all were chosen to be surveyed — 12 in Lagos and 6 in Benin City. This paper presents evidence tallied from about half of the surveyed respondents who reside in 10 neighbourhoods in the Shomolu and Ifako-Ijaiye local governments in Lagos metropolitan and in the Oredo and Egor local governments in the Benin City metropolitan area.

The list of surveyed neighbourhoods discussed in this paper is shown in Table 1. Although local governments were categorized for their density using census data, master plans, and location within the urban area, the neighbourhoods within local government areas also varied by density and environmental conditions. For example,

[8] In the full study, mixed ethnographic methods are used including semi-structured interviews, open in-depth interviews, observation, and face-to-face ethnographic surveys. This process is useful in studies using qualitative methods, as findings from different data sources can be corroborated (LeCompte & Schensul 2001).

Dideolu Court in Lagos and Garrick Layout in Benin City are residential estates featuring more single-family households and residents with higher incomes than in other areas. Some areas were characterized by observation as blighted, such as Shodimu in Shomolu local government, and Awori/Abule-Egba in Ifako-Ijaiye, given dilapidated infrastructure (lack of paved roads, high density, openly dumped refuse, and other observable environmental characteristics).

As one of the central premises of the study is that environmental conditions affect the willingness of citizens to engage in voice as a response to dissatisfaction with urban services, these categories will be used to analyze the strength of the relationship between neighbourhood context, civic participation, and access to water and other services. There is some indication that spatial variables do affect the willingness and ability of households to exert voice as a response to dissatisfaction with basic amenities.

Table 1. Selected Communities

Lagos	**Benin**
Ifako-Ijaiye Local Government	Oredo Local Government
Dideolu Court	Uzebu Quarters
Awori/Abule-Egba	Garrick Layout
Ogba	
	Egor Local Government
Shomolu Local Government	Evbareke
Pedro	Uselu Quarters
Palmgrove	
Shodimu	

Although Nigeria completed a long-delayed census in 2006, provisional results below the local government level are not yet available to researchers or the public. The census office in Lagos did assist the project by providing a list of localities and the number of sampling units used in the official census, but the level of data provided was not sufficient to select enumeration areas. Therefore, a database of street names for each local government served as the basis for selecting enumeration areas, thus large streets were broken into smaller segments. Neighbourhoods were then randomly selected from this list and mapped with the help of key informants. Participants for the face-to-face ethnographic surveys were selected from these randomly selected clusters. Each survey lasted approximately 45 minutes to one hour. The main purpose of these surveys was to

identify household configurations, demographic characteristics, dimensions of access (beyond source and distance to source), behaviours in response to satisfaction with water providers, and neighbourhood effects as determined and perceived by male and female heads of households.

Neighbourhoods were the principal cluster used to select households in order to understand locational dynamics affecting the stratification of social services in cities. Neighbourhoods were originally conceived of in the early part of the twentieth century as organic geographic areas that emerged from the land use competition between business and residential interests (Park & Burgess 1921). Later, Suttles (1972) addressed how outsiders can impose neighbourhood identity. Various studies on communities and neighbourhoods have conceived of neighbourhoods in different ways—as centres of activity, demographic clusters, centres of shared values and norms, social systems, sites of power hierarchies and social interaction, and more (Cox 1987). In different ways, these studies seek to analyze context as location or site specific and present ways of examining the consequences of political power in society.

The main challenge to this study and others that use neighbourhood as a unit of analysis is how to operationalize the neighbourhood. Using census tracts provides an easy way to target small geographic areas and is true to the original conception of neighbourhoods as nested hierarchical entities. However, this approach is imperfect, at best, given the differing perceptions of spatial boundaries by residents themselves and how these boundaries could be fluid depending on the type of activity or phenomena being measured. When smaller studies have used other definitions of the neighbourhood outside of census groupings, effects are captured but hard to reproduce in other geographic areas.

The purpose of research into neighbourhood effects, found predominantly in sociological studies, is to examine how where one lives affects social and economic outcomes. Looking at site-specific context provides a way to measure the potential both for collective action and collective effects on access. Studies of neighbourhood effects first appeared in the 1960s. Interest in the area increased again in the 1980s after the publication of William Julius Wilson's *The Truly Disadvantaged* and James Coleman's work on social capital.[9] Initially,

[9] Around the same time, Jencks and Mayer (1990) and Mayer and Jencks (1989) proposed that growing up in poor neighbourhoods affects socioeconomic outcomes because of intervening factors such as collective socialization. With new data sources and statistical techniques, neighbourhood effects research exploded in the 1990s, resulting in about 100 publications each year (Sampson, Morenoff & Gannon-Rowley 2002).

researchers wanted to know whether where you live mattered. Later research explored processes by asking how does where you live matter. Some studies in the EVL literature that focus on the source of dissatisfaction on intent to stay or exit a municipality have found neighbourhood context to be important, particularly in how it affects problem perception and neighbourhood satisfaction (Scavo 1986). Other factors affecting community supply and demand of services and infrastructure include length of residence and tenure (transience), presence of affluent neighbours, level of existing infrastructure, hydrology, legal institutions affecting water markets, and community organizing.

Despite the tremendous amount of neighbourhood effects research, not much has been done on neighbourhood analysis outside of the US (Montgomery & Hewett 2005). This is due in part to the lack of data to carry out systematic quantitative analyses. There is, however, literature on strong society and weak states in Africa, featuring the work of Goran Hyden and others, which challenges the notion of the dominant role of the state in political economy and looks at institutions that have had an impact on "individual and collective" behaviour.[10] Looking at the active private market for water in Lagos, we are reminded of the limited role of the state in people's lives. In this situation, how do people who purchase vendor water cope with high water prices (compared to the monthly bills for a household connection) and unreliable water quality? Moreover, what factors would compel the state to begin to assert a stronger role in the urban governance of basic services? Barkan, McNulty, and Ayeni (1991) note that the shift towards interest in civil society organizations stemmed from the desire to understand the ways in which government maintains legitimacy by responding to the diverse needs of those it governs. In this conceptualization, these institutions mediate between the state and citizens. Voluntary, neighbourhood-based associations could affect the use of voice as a strategy and the signals received by formal structures of governance in the delivery of water and other basic services. Despite the U.S. focus in the sociological neighbourhood effects literature, a small number of studies using data from other countries have used neighbourhood effects models to systematically examine the relationship between variables such as health outcomes at the neighbourhood level and at the individual or household level (Montgomery & Hewett 2005). The following section discusses the conceptual model used to model household demand behaviour in the neighbourhood context.

[10] See Barkan, Mcnulty and Ayeni's article on voluntary associations and civil society in West Africa (1991).

Conceptual model: exit, voice, and household access to water

The concepts of exit, voice, and loyalty were first used by Albert Hirschman to describe the various ways that citizens and consumers respond to deteriorating performance by firms, organizations, and the state. Hirschman initially formulated the concepts while attempting to understand the case of the failing Nigerian railways in the face of competition from the trucking sector (1970, p. 44). Exit is related to use of the market mechanism (the decision to no longer purchase a product or service). It can also be thought of in other ways – quitting a job or resigning from an organization. In the realm of local government services, exit would entail individuals or households moving to a new jurisdiction (as in the 1956 Tiebout model) or switching to private provision (Young 1976).

Unlike exit, voice represents many different actions that attempt to change a given state of affairs through individual or collective action. Hirschman linked voice to non-market forces such as complaint, protest, media influence, and political participation. Hirschman defined loyalty as a concept that allows for the co-existence of exit and voice. It holds off exit and exists either because an individual feels he holds influence, is conscious of the fact that his exit may cause harm to the organization or institution, or the past use of voice or influence-wielding inspires loyalty. Loyalty does not prevent exit; it only keeps it from being the option of first resort. Hirschman writes that loyalty could be instituted to inspire the use of voice by raising the cost of exit. The goal of Hirschman's original work was to identify the conditions under which exit or voice would prevail, the relative efficiency of each option, and when both mechanisms are combined to influence performance (Hirschman 1970, p. 5).

Later psycho-behavioural studies that empirically test the EVL model add a fourth variable, neglect, to describe passive, destructive behaviour, thus categorizing exit and voice as active responses to dissatisfaction and loyalty and neglect as passive responses. Neglect is described by Rusbult et al (1988) as "passively allowing conditions to deteriorate" (p. 601). It is distinguished from the other passive behaviour, for example, loyalty (optimistically or patiently waiting for the service to improve), by the individual's motivation. In attempting to categorize the reported behaviour of households with respect to water services in the study area, a fifth variable was added, quasi-exit. The concept of quasi-exit, originally coined by Lehman-Wilzig (1991) applies to those who do not believe in the efficacy of, or are unable to use voice or exit and thus create an alternative supply of a public good through possibly extra-legal means (Mizrahi & Meydani 2003). This paper uses an expanded framework that incorporates all of the above-mentioned categories - exit, quasi-exit, voice, loyalty

and neglect (EQVLN) to categorize household responses to water supply problems. In traditional economic terms, exit is thought of as the most efficient expression of consumer preference (hence the plethora of literature on introducing competition into public services delivery). Hirschman, however, argued that no studies demonstrated the ability of competition to "lead firms back to 'normal' efficiency … after they have lapsed from them," much less public organizations (1970, p. 22). Consideration of quality is the other side of the coin in understanding the demand for public services. Most policymakers in the water sector and much of the literature are preoccupied with pricing and cost recovery without fully understanding household behaviour. Although the implementation of cost recovery measures may be economically efficient, the quality of municipal services must be as good as or greater than what they could obtain from private vendors (Fox & Edmiston 2000).

The EVL framework has been used to understand the evolution of civil society in response to discontent with the performance of the postcolonial state in Africa (Osaghae 1999; Bratton 1989; Azarya & Chazan 1987). Osaghae describes exit behaviour in Nigeria as a matter of survival, citing the dramatic upsurge in parallel, self-governing, black market, and self-help groups that arose in the 1980s and 1990s to perform "shadow state activities" including potable water provision and other basic services (1999, p. 84). In this way, Osaghae (1999) and Simone (2001) view exit (in the form of increasing informalization of urban governance) as a kind of social activism. Although exit can be described in this way, I have operationalized exit as it was used by Hirschman and in subsequent empirical tests of the model, as the motivation of the citizen-consumer.

For Hirschman, the key feature of exit is that the citizen-consumer could not care less about the result of his decision to terminate the relationship, even if the decision inadvertently stimulates improvement (1970, p. 104). Individual exit, in this model, is not treated as a form of protest. This allows for the distinction between behaviour that is motivated by a desire to improve the performance of a particular (public or private) water supplier and behaviour that is not. For the state-managed water boards in Lagos State and Edo State, understanding exit behaviour is critical, as exit deprives the public sector of the feedback mechanism that people may exercise when locked in. Moreover, in the case of households that have invested thousands of USD equivalent in Naira in establishing their own private borehole water systems, unless there is official coercion, re-entry may no longer be a rational alternative.

Key questions that have not been adequately explored in the literature on urban service delivery in developing contexts include:

To what extent are households concerned with basic services as an issue, dissatisfied with the quality of service provision, and willing to take action to improve service quality and their access to services? In terms of action, do they tend to withdraw and switch providers or turn to self-provision? Is there loyalty in the face of alternatives? Do some households simply give up, both in expectations of government and/or service providers? In a study of willingness to pay by Whittington, Okorafor, Okore and McPhail (1990) of a rural district in Anambra state Nigeria, quality of water services along these dimensions was found to be lacking and was the reason that residents did not want to commit to paying for water in advance for a fixed monthly fee.

Although vended water was higher priced it was preferred over public taps due to the perception of the quality of government-provided services, and the ability to control their cash flow by purchasing only the amount of water desired when it was needed (enabling cash to be used for other purposes when necessary). Rather than improve the public water supply, residents exited from it completely. Lagos may present the extreme of exit behaviour in the face of declining public services. In Gandy's 2004 article on the history of planning and infrastructure development in the city, Lagos is described as a self-service city where citizens readily solve their own problems when it comes to accessing basic services, rather than investing significant energy in protest.

Although heavily discussed in academic and practitioner literatures, the concept of accessibility, when it comes to basic urban services, is fraught with ambiguity and complexity. Access defined as household proximity to a public facility (water pipestand or public latrine), for example, can mask overcrowding and under use. Counting the number of homes with household connections across a given area or the number of public facilities does not measure usage, water quality and pressure (and how this might affect the quantity of water consumed), cost (including the time cost to transport water a given distance or reduced quantity), or self-provision from wells or boreholes.

There is also some evidence that the relationship between income and access is complex, and that the level of aggregation for both independent and dependent variables is critical to analyzing this relationship and how access is defined and measured (Daniere & Takahashi 1999; Manase, Mulenga & Fawcett 2001; Crane & Daniere 1996). Studies have also shown that other demand factors over and above location or income can be just as important in determining access, such as the organizing behaviour of communities, the prevalence of alternative sources, the political and economic structure underlying the cost of services, and the perception that environmental amenities are inadequate (Daniere & Takahashi 1999).

For this reason, a more thorough understanding of the multidimensional nature of access in a given setting is needed prior to policy formulation and implementation.

Various studies in the literature on exit, voice, and loyalty have found that in cases of imperfect competition (which characterizes water delivery in many African cities where there is a state-run utility competing side-by-side with private formal and informal vendors), voice would send a more specific signal to providers than exit (Sawyer 1993). Yet, household strategies and responses to performance will be conditioned by their expectations of resolution (given perceptions of the provider, prior history, threat, cost-benefit calculation of speaking out compared with switching providers or remaining silent).

Other demographic factors, such as socioeconomic status or whether the family has recently migrated to the area, may also affect household strategies. In the following section, I present preliminary findings on water supply in the study areas, and analyze the relationship between neighbourhood characteristics and household strategies in response to dissatisfaction with water provision.

Preliminary findings and discussion

The survey instrument consisted of 93 questions divided into five sections: Household Information, Individual Information, Dimensions of Access, Dissatisfaction, Exit and Voice, and Neighbourhood Effects. The section on access had multiple measures designed to assess a wide array of factors, such as availability, reliability, alternative sources, usage by source, price, and maintenance costs. Other dynamics affecting access were also contained in questions posed to respondents about problems experienced (if any) with their regular water supply. The section titled, Dissatisfaction, Exit and Voice, was designed to elicit responses about satisfaction and civic participation with respect to the regular source of water supply to the household, whether municipal, private, or self-provided. Because water supply in many contexts is often considered to be a public good (even when government does not actually provide it) questions were also asked about respondent's opinions about other public services such as health care, education, roads, etc. along with water in order to get a sense of public perceptions of the role and extent of government responsibility.

This section of the survey contained an in-depth series of questions about what actions have members of the household taken in response to problems with their water supply, and asked them to evaluate the effectiveness of their response. Lastly, respondents were asked about willingness to pay to improve various aspects of water supply. In Lagos, the survey included an additional section which asked whether

respondents were aware of the privatization of the Lagos state water supply. The last survey section on neighbourhood effects asked respondents about their satisfaction with the provision of services in their neighbourhood, their willingness to work with neighbours to improve water supply, and the level of awareness about nongovernmental organizations or government projects operating in their area. Below are the preliminary findings from the survey on access, satisfaction, and household response to the quality of water services in Lagos and Benin City.

Finding 1: Range, Cost, and Quality of Water Supply Alternatives

When asked about their primary source of water, most respondents reported using covered wells or boreholes.[11] There is some variation, with residents of Shomolu local government sourcing their drinking water from a combination of piped water, borehole, and packaged (bottle or sachet) water. Some residential areas are located in close proximity to the main trunk lines running from surface water sources in both cities. Residents in these areas report higher levels of piped water usage than in others. Among those who report using piped water, most use shared water, either a pipestand shared with other families in a compound or public taps shared by a neighbourhood. Although boreholes and wells are categorized as safe water sources by the World Health Organization and UNICEF Joint Monitoring Programme, water in some of the covered wells we observed was murky and filled with visible contaminants. In Lagos, most reported using these types of wells for all types of washing - hygiene, laundry, dishes and cookware, and general cleaning. In terms of drinking water, most in Lagos purchased borehole water from vendors who deliver it to the household. In Benin City, most purchased private borehole water from houses in the neighbourhood or surrounding area.

Table 2 compares drinking water sources and water source satisfaction by urban area. In both cities, fewer households report using piped water (provided at the state level by either the Lagos Water Corporation or the Edo State Water Board) compared to groundwater purchased from private sources. Most households surveyed reported

[11] For the purposes of presenting data in a manner easier to grasp, water sources were grouped together from 20 categories of water supply divided into sources such as piped water, water from open well, water from covered well or borehole, surface water, and other sources. Within those categories, sources were distinguished by whether they were located within the house or compound, public or purchased, and other categories.

having access to flush toilets (often shared with other families) connected to septic tanks with soakaways. However, usually water has to be poured into the toilet by hand given the absence of running water in most settings. Overall, more households reported not being satisfied with their household's regular source of water. Respondents were asked to rate on a percentage scale from 0 per cent to 100 per cent whether they were able to obtain water at the time they wanted to obtain it over the prior month.[12]

This is what is identified as availability. For example, in some communities we visited, residents told us that pipes do not always flow, or that households with boreholes do not sell water to the community at all hours of the day and can stop selling water arbitrarily. Residents in Lagos (Ifako-Ijaiye and Shomolu local governments) report a higher level of availability of their water supply than in the Benin City metropolitan area, 74.5 per cent and 59 per cent respectively. This can be attributed to the fact that in Lagos vendor water is generally delivered to the household, whereas in Benin City those without an in-home connection or borehole on the premises must fetch water for themselves. This leads to a much higher rate of uncertainty that they will be able to find water. As Table 2 shows, a higher rate of residents in Oredo and Egor reported that they were not at all satisfied or somewhat dissatisfied with their regular water supply.

Table 2. Water source and satisfaction by urban area.

The reasons for household dissatisfaction with their primary water supply are summarized below by local government area and neighbourhood in Tables 3 and 4. The reasons for dissatisfaction come from several sources. By far, the biggest complaint is power failure, which leads to several problems. For households without a generator large enough to run the borehole water pump, water provision will last only as long as water remains in the storage tanks. Generally, houses without large generators will stop selling or giving water to the public when the power supply is cut off. For households with generators large enough to carry boreholes, the cost of fuel to run the generator adds to the cost of water for the household. For homes that sell water to the public or to vendors for resell (which is primarily the case in Lagos), the price is doubled. In areas that charge 5 Naira per

[12] This measure is designed to capture people's perceptions. The scale was accompanied by a graphic featuring a smiling face at the 100 per cent end of the scale and a sad face at the 0 per cent end of the scale. Those who could not state an exact percentage were asked to point somewhere along the scale that best described their happiness with the ability to obtain water when they wanted it over the prior month.

	Lagos (N= 226)			Benin C. (N= 163)	
Water Source	(n)	(%)		(n)	(%)
Piped water	57	25%		24	15%
Open well	23	10%		6	4%
Covered well or borehole	119	53%		122	75%
Rainwater	2	1%		0	0%
Tanker	0	0%		1	1%
Packaged	35	15%		2	1%
Other	2	1%		1	1%
Availability of drinking water		74.5%			59%
Satisfaction with regular water supply					
Not at all satisfied	39	17%		52	32%
Somewhat dissatisfied	14	6%		12	7%
Neutral	18	8%		29	18%
Somewhat satisfied	22	10%		19	12%
Extremely satisfied	26	12%		21	13%

25l jerry can, the price will double to 10 Naira. In areas where the water is 10 Naira, the price jumps to 15 or 20 Naira per jerry can.[13] Constant power outages from the recently privatized Power Holding Company of Nigeria (PHCN, formerly the Nigeria Electric Power Authority, or NEPA) are a major factor affecting access to water for households, businesses, and state-level water utilities.

Other reported water problems appear to be specific to local governments. For example, water illnesses and distance to the source are problems in Ifako-Ijaiye and Shomolu local governments in Lagos and to a lesser degree a problem in Egor. Some households in Ifako-Ijaiye and in Oredo local governments report that the cost of water is a problem. When further decomposed into responses by neighbourhood in Table 4, it is clear that at the sub-local government level, some problems, such as waterborne illness, cost, and distance to the source, are actually particular to certain neighbourhoods. For

[13] Respondents were asked how much they spend on water from their primary and secondary (when applicable) sources of water. There is much variation in how water is purchased and priced, which yet to be calculated for each survey.

instance, water-related illness appears to be a major problem in the Pedro community of Shomolu local government more so than power supply. Waterborne illness was also reported as a problem by some households in the Shodimu community, which is also located in Shomolu. In the Awori/Abule-Egba community of Ifako-Ijaiye local government, distance to the source was reported as a problem as much as power supply.

Table 3. Reported recent problems with regular water supply by local government

	Ifako (N=67)		Shomolu (N=116)		Oredo (N=67)		Egor (N=69)	
Service Interruption-planned	1	1%	1	1%	2	3%	4	6%
Service Interruption -unplanned (Electricity)	35	52%	62	53%	48	72%	35	51%
Water quality/Illness	10	15%	33	28%	2	3%	6	9%
Distance to source	13	19%	6	5%	1	1%	7	10%
Water pressure/Leaks	0	0%	2	2%	1	1%	7	10%
Lack of storage	0	0%	1	1%	0	0%	0	0%
Price/cost	7	10%	7	6%	12	18%	6	9%
Other	1	1%	4	3%	1	1%	4	6%

Table 4. Reported recent problems with regular water supply by neighborhood

Most recent problem with regular water supply

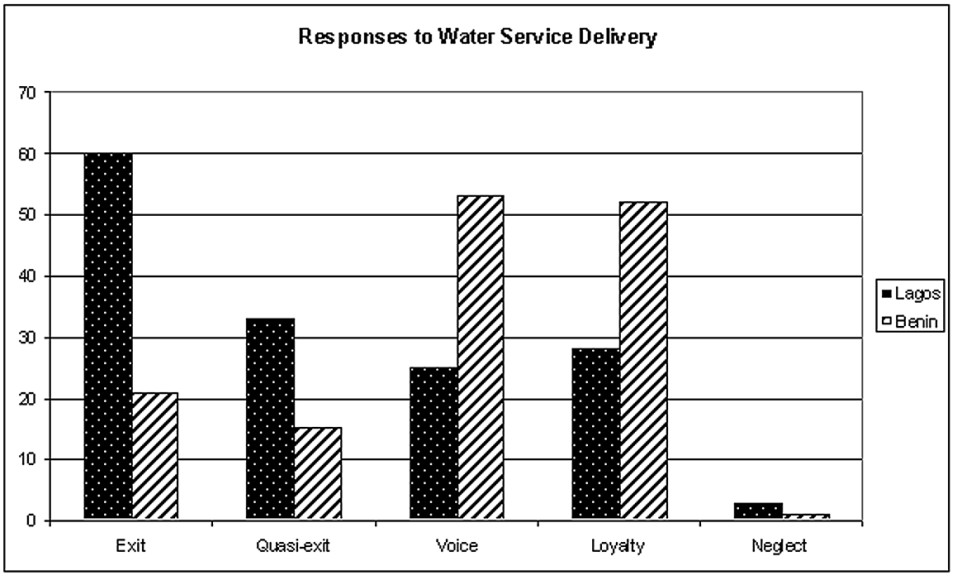
Lagos	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
fako-Ijaiye - Ogba	0	18	2	3	0	0	4	0
Ifako-Ijaiye- Awori/ Abule-Egba	1	7	5	8	0	0	0	0
Ifako-Ijaiye -Dideolu Court	0	10	3	2	0	0	3	1
Shomolu-Shodimu	0	24	8	1	1	0	1	1
Shomolu-Pedro	1	15	23	1	0	0	1	3
Shomolu-Palmgrove	0	23	2	4	1	1	5	0

Benin City	A	B	C	D	E	F	G	H
Oredo - Uzebu Quarters	0	37	1	0	1	0	12	0
Oredo - Garrick Layout	2	11	1	1	0	0	0	1
Egor - Uselu Quarters	1	16	3	6	5	0	0	2
Egor – Evbareke	3	19	3	1	2	0	6	2

Legend:

A Service Interruption-planned	E	Water pressure/Leaks
B Service Interruption-unplanned (Electricity)	F	Lack of storage
C Water quality/Illness	G	Price/cost

Figure 2. Response to Water Service Delivery



Finding 2: Household Response to Dissatisfaction with Water Supply

The questionnaire also asked respondents to identify the most recent thing or event that caused them to be unhappy with their regular water supply. If respondents indicated an event, they were asked to indicate the timeframe in which it occurred. Respondents were then asked to describe their response to the incident, which was then coded

into one of the five categories – exit, quasi-exit, voice, loyalty, and neglect. Here, as in psycho-social studies of exit and voice in human relationships, this was operationalized as response to dissatisfaction with water as either a product or service, or in terms of the relationship with the primary service provider.

Action defined as exit included switching to an alternate provider, while quasi-exit focused on creating an alternate supply. Voice included complaining or organizing with others to address the problem. Loyalty included actions such as patiently waiting for the problem to go away.

Categories of quasi-exit (described earlier in this paper as what occurs when complete exit is impossible as is often the case with public services) and neglect (which included behaviour such as withholding payment or not reporting busted pipes) were also included.[14]

There is a difference in the ways that households responded that corresponds strongly to location. Figure 2 shows the clear difference in responses by residence in Lagos or Benin City. In Lagos, most households used exit and quasi-exit in response to problems with water supply. In Benin City, voice and loyalty were the more likely responses.

Potential reasons for this split will be examined in the next section of findings on housing and migration characteristics and responses at the neighbourhood level. Few households reported using neglect as a strategy. However, this will be explored in more detail through the results of the structured and in-depth interviews, which are not reported here.

[14] Much of the exit, voice and loyalty (EVL) work that followed from Hirschman built upon the social psychology work of Rusbult, Zembrodt and Gunn (1982) on EVL behavior in close relationships, leading to the adding of a fourth varia-ble, neglect, defined as passive and destructive behavior. The literature using this modified EVLN framework in social psychology and labor economics that has followed the Rusbult et al line of thought asks, in essence, under what situational circumstances are (employees/individuals in a relationship) likely to engage in either active/passive or constructive/destructive responses to (job/relationship) dissatisfaction (Roberts 2004; Withey & Cooper 1989). This treats individuals as the same and gives primacy to circumstances under which everyone is equally likely to choose alternative courses of action. Later research asked what types of people are likely to choose which responses. The validity of using exit, voice and loyalty as variables has been tested in the EVLN framework, which posits exit and voice as active responses and exit and neglect as destructive (Roberts 2004).

Legend:				
	Lagos (N=149)		Benin (N=142)	
Exit	60	40%	21	15%
Quasi-exit	33	22%	15	11%
Voice	25	17%	53	37%
Loyalty	28	19%	52	37%
Neglect	3	2%	s1	1%

The variation of responses at the local government and neighbourhood levels is analyzed below. In Tables 5 and 6, responses to water problems are tallied by local government and by neighbourhood. At the level of local government there was variation in household response to water problems. Overwhelmingly, residents of Lagos in both local governments were more likely to use exit strategies in response to problems, presumably given the prevalence of alternative water sources. However, there is some interesting variation at the neighbourhood level that will be explored further. For example, Table 6 shows that residents in two of the neighbourhoods in Shomolu local government were more likely to use voice and loyalty compared to the other Lagos neighbourhoods. This may be tied to the neighbourhood characteristics (discussed below). Another interesting finding is that although households in Benin City reported higher rates of dissatisfaction with their water supply, they were more likely to use voice and loyalty as strategies, although this was truer for households in Oredo local government and in the high density Uzebu Quarters area in particular. Future analyses will use categorical analyses at the household level to test the hypotheses proposed by this study in order to explore whether household response to water problems are linked to the nature of the problem itself, to characteristics of the household, or to neighbourhood level factors that facilitate or inhibit individual or collective action to address problems with basic services.

Table 5. Responses to water problems by local government
Legend:

	Lagos				**Benin City**			
	Ifako-Ijaiye (N=73)		**Shomolu (N=57)**		**Oredo (N=69)**		**Egor (N=92)**	
Exit	20	35%	40	43%	4	6%	17	23%
Quasi-exit	20	35%	13	14%	5	7%	10	14%
Voice	9	16%	16	17%	29	42%	24	33%
Loyalty	8	14%	20	22%	31	45%	21	29%
Neglect	0	0%	3	3%	0	0%	1	1%

Table 6. Responses to water problems by neighborhood[15]

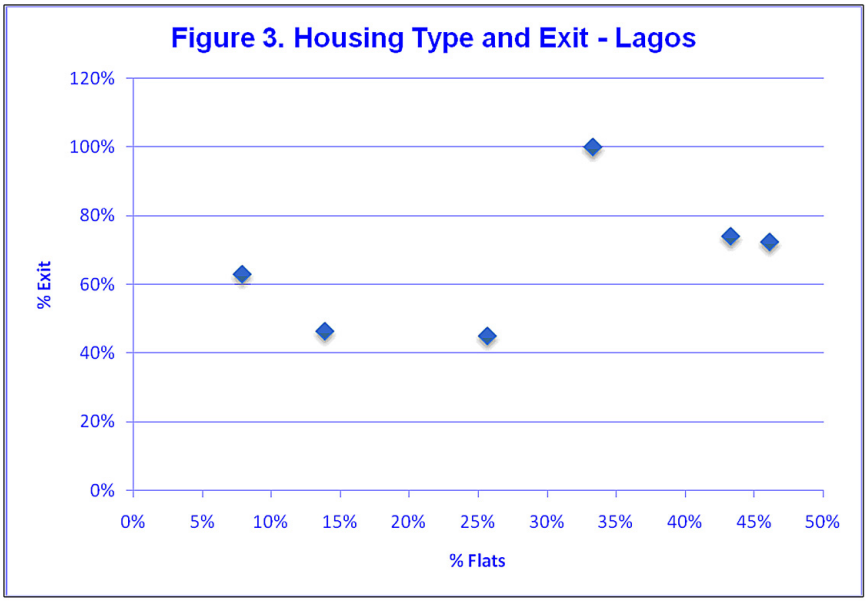
	Exit		Voice		Loyalty	
	(n)	(%)	(n)	(%)	(n)	(%)
Lagos						
Ifako-Ijaiye – Ogba	9	45%	5	25%	6	30%
Ifako-Ijaiye - Awori/Abule-Egba	14	100%	0	0%	0	0%
Ifako-Dideolu Court	17	74%	4	17%	2	9%
Shomolu-Shodimu	18	58%	3	10%	10	32%
Shomolu-Pedro	21	72%	5	17%	3	10%
Shomolu-Palmgrove	11	42%	8	31%	7	27%
Benin City						
Oredo – Uzebu Quarters	5	10%	22	42%	25	48%
Oredo - Garrick Layout	4	24%	7	41%	6	35%
Egor - Uselu Quarters	14	44%	10	31%	8	25%
Egor – Evbareke	12	31%	14	36%	13	33%

Finding 3: Household Responses and Neighborhood Characteristics

The stated goal of this paper has been to explore preliminary relationships between neighbourhood-level variables (such as percentages of residents by housing type, migration status, and EQVLN response) to recent problems with water supply. Aspects of housing and migration, such as land tenure and length of residence, have been linked to urban service delivery and the dynamics of poverty in urban areas (UN Habitat 2003). In both Lagos and Benin City, the percentage of residents living in a flat correspond to the percentage who report using an exit strategy in response to their most recent problem with water supply. Figures 3 and 4 show a scatter plot of the 10 neighbourhoods, with each data point representing a neighbourhood (six in Lagos, four in Benin City). The percentage of neighbourhood residents who live in flats is shown along the x-axis and the percentage that report using exit as a strategy along the y-axis. There is an upward trend in the use of exit as the percentage of residents living in a flat increase. Why does this relationship not exist for single-family residents or households that live in rooms? It

[15] The categories of exit, quasi-exit, and neglect were combined in order to increase the number of observations per cell in order to allow for a Pearson's chi-square test of the independence between neighbourhoods in terms of re-sponse variables. The results of the chi-square test revealed p = <.0000, indi-cating that neighbourhoods do differ in their response to water problems. Be-cause quasi-exit (solving the problem on ones own or switching temporarily) and neglect (not paying bills or destroying provider equipment) are forms of exit, this combination of variables is judged to be valid for the basic analysis presen-ted here. These extended categories will be further explored in future analyses.

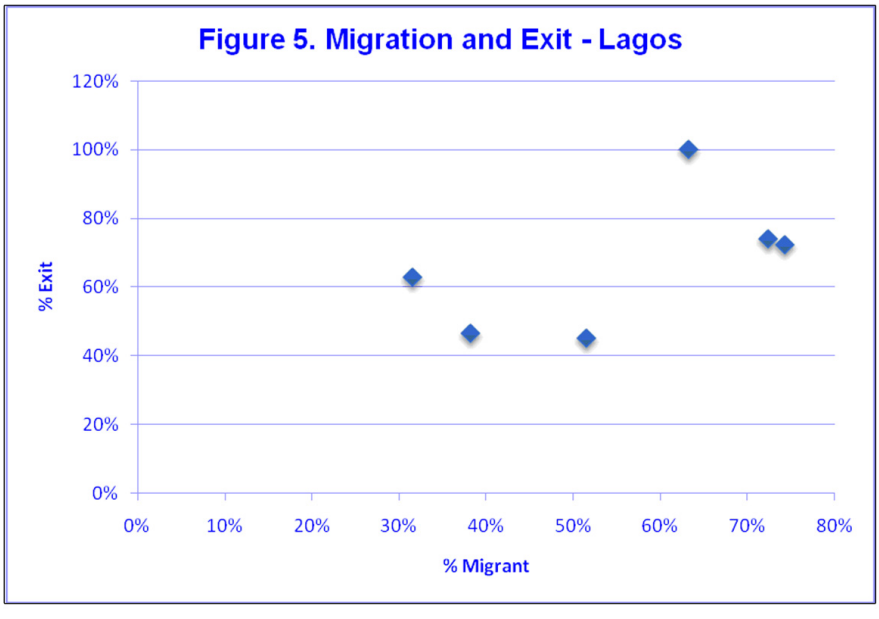
may be that because residents in single-family homes have invested more in their own water supply, they are less likely to exit. On the other hand, it might seem that residents that live in rooms may want to exit, but lack the financial means to do so, given the alternatives available. However, there also seems to be an upward trend in the percentage that live in rooms and an increasing percentage of responses that fall into the loyalty category - waiting or hoping for the problem to go away. There also seems to be a negative correlation between living in houses and flats and loyalty. So far, the data does not reveal any discernible link between any housing type and use of voice. The next step will be to cross-tabulate these responses at the household level and use categorical analysis to analyze the relationship between housing and voice while controlling for other variables.

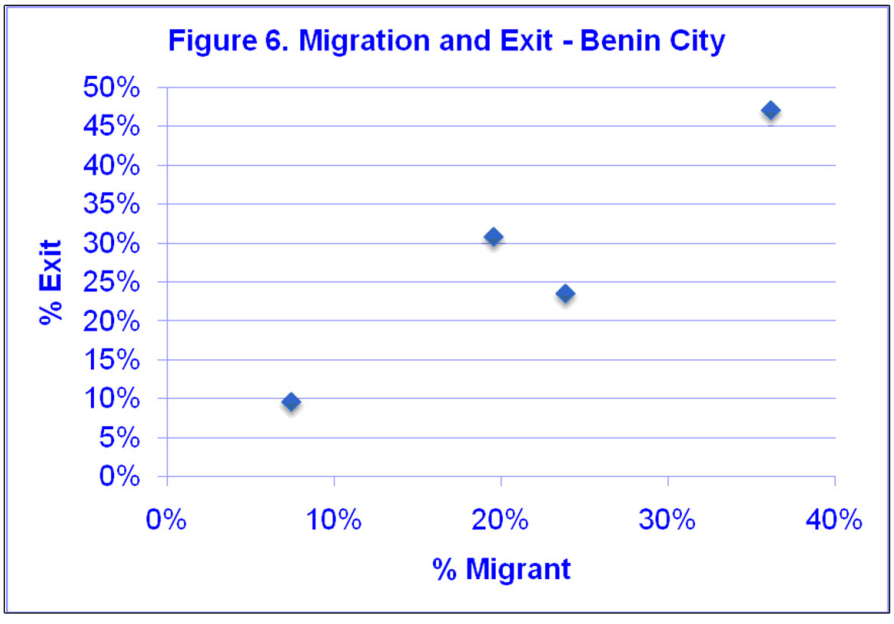


Among neighbourhoods in both Lagos and Benin City, the percentage of residents who are migrants to the city corresponds to the percentage that report using an exit strategy in response to their most recent problem with water supply. In both cities there appears to be a negative relationship between those who report indigenous ancestry in the city and the use of exit strategies. Figures 5 and 6 show a scatter plot of the selected neighbourhoods with the percentage of migrants to the city in a neighbourhood, against the percentage by neighbourhood, that report using exit as a strategy. As in the case of housing type, the next step will be to proceed with a categorical analysis of this relationship at the household level. For voice, the results were mixed. There does seem to be a strong association by neighbourhood between

the percentage of indigenous residents and the percentage who report using voice. In Benin City, the use of voice by neighbourhood corresponds somewhat to the percentage of residents born in Benin City. In Lagos, the percentage of migrants in a neighbourhood has a strong negative association with the percentage that report using voice. In both cities, the percentage of households that report loyalty as a response has a strong negative correlation with percentage of migrants.

Having looked separately at housing type and migration status, what is the relationship between these two variables? There appears to be a strong relationship between being born in the city or being a migrant and living in a single-family house or in a flat. In the neighbourhoods surveyed in Lagos, the percentage of residents born in the city is negatively associated with the percentage living in single-family homes and overwhelmingly associated with the percentage living in flats. In Benin City, in the neighbourhoods surveyed, the percentage born in the city is strongly associated with the percentage living in single-family homes and somewhat associated with the percentage living in flats. So far as the preliminary findings show, neighbourhoods in both cities have low or negative associations between the percentage of indigenous households and percentage living in single-family houses. It remains to be seen whether this relationship will hold, as some of the remaining neighbourhoods in the full dataset have higher proportions of indigenous residents. Additionally, ownership may be more pertinent to this analysis, and at least one of the remaining communities with data not yet entered has a number of residents who live in flats they own.





Overall, the use of exit over voice as a strategy seems to be more clearly linked to both living in a flat and being a migrant (as separate variables). A picture emerges in both cities where migrants to the city (so far measured as the percentage of migrants by neighbourhood) may be reluctant to engage in organizing behaviour or to interact with official governance structures in response to problems with water supply.

It could be that because Lagos has a higher percentage of migrants, the use of exit and quasi-exit is the typical response, compared to Benin City. Hirschman wrote that the ability to use exit as a strategy would diminish the use of voice. Such a finding would have implications for understanding factors that contribute or inhibit the responsiveness of government and service providers to the needs of consumers and constituents.

There has been an abundance of literature on state-society relations in Africa. At least one strand of this literature has looked at the roles that local voluntary associations play in both integrating migrants into the urban social fabric and in problem solving around basic services provision (Simone 2004, 2001, Aina 1997, 1990, Barkan, Mcnulty & Ayeni 1991, Barnes 1975). The questions from this paper that will need to be addressed with variables from the full dataset include to what extent membership in voluntary associations varies with household and neighbourhood characteristics and whether, in the case of water supply, such voluntary associations serve as institutions for organizing residents to exert voice or to facilitate exit.

Looking at membership in voluntary associations, a majority of respondents in both Lagos and Benin City reported that they belonged to religious organizations (see Figure 7). Barnes (1975) found the same pattern in Lagos over 30 years ago, documenting the importance of religious institutions in daily life. In the present study this pattern was consistent across all surveyed neighbourhoods. Although religion generally plays a role in meeting functional needs of the community, Barnes also found that religious affiliation was even more important.

For example, large religious groups like Catholics and Methodists were not as effective at integrating individuals into the community as were smaller Christian institutions, Islamic groups or sects. In this survey, respondents were also asked to identify their religious affiliation and this will be analyzed to parse out the effects of religious affiliation on household responses to water problems and access. The second highest reported group membership is neighbourhood associations, including landlord/tenants associations and community development associations. Ethnicity and kinship organizations were the next largest reported memberships, although not many respondents reported belonging to such organizations.

Conclusion

Like many cities in the Global South, both Lagos and Benin City are characterized by urban water markets, where multiple suppliers compete with the state-run water utility. Water scarcity—characterized by a lack of a piped water connection to the household or on the premises—is a major problem in both cities. Most residents use groundwater as their primary water supply for drinking and other purposes, whether they own a borehole system, use one owned by a landlord, or must purchase water from households in the neighbourhood or vendors who deliver it. In terms of satisfaction with their water supply, residents of Benin City report greater levels of dissatisfaction with their primary household supply and rated very low (compared to Lagos) the availability of their water supply over the month prior to the survey. Looking at the available water sources, this is probably due to the overwhelming dependence of Benin City residents on borehole water from systems outside of their compounds and even outside of their neighbourhoods. Regardless of their level of satisfaction with their own household supply (which was higher among residents who had boreholes on their own property), most reported being dissatisfied with the level of safe water provision in their neighbourhoods. Data was also collected on membership in neighbourhood voluntary associations and willingness to act collectively around water problems. Those findings will be included in future analyses, particularly in exploring how associations

facilitate social integration into urban life.

There is a clear difference between responses by metropolitan area, with Lagos residents opting for exit and quasi-exit strategies and Benin City residents opting for strategies that involve voice and loyalty. Few in either city reported using neglect, and this will be explored further using qualitative data collected during structured and in-depth interviews. Despite the overall difference in strategies at the aggregate level, there is variation by local government and neighbourhood in responses to water problems. There is also variation in the types of water problems reported by neighbourhood, although unplanned water supply interruptions from power shortages were the most frequently reported problem. Looking at household type and migration data at the neighbourhood level seems to provide some clues about the variation between Lagos and Benin City in preferred response to water problems. The percentage of residents that live in a flat or who have migrated (versus having been born in the city or indigenous to the area) is strongly associated with the percentage that report using exit as a strategy. Lagos has more migrants and more residents who live in flats. However, those neighbourhoods in Benin City with higher percentages of people living in flats or migrants also report higher rates of exit responses. After the dataset has been fully entered these relationships will be explored in much more detail, allowing for a more thorough examination of the factors determining the use of non-market responses to dissatisfaction with basic services provision, whether they are demographic, contextual (neighbourhood effects) or linked to the nature of the problem itself. Once these factors are isolated, the second major task of this research is to explore the relationship between voice and improved access to water in the study areas.

While the results discussed in this paper are preliminary and based on summary statistics aggregated at the neighbourhood level, they point to some interesting directions in terms of how neighbourhood composition and organization could be related to processes of social and economic deprivation. As discussed, the literature on in formalization and urbanization in Africa has acknowledged the dominant role of civil society in meeting the basic needs of urban citizens, both as necessity and as an expression of protest. The expanded EQVLN framework used in this study provides a way to systematically document the way households are coping with inadequate water provision in developing countries where urban water markets commonly compete with state-run utilities.

The overriding learning objective of this study is to develop a body of knowledge for interdisciplinary researchers, communities, and policymakers that are interested in understanding examples of urban service delivery in African settings from the perspective of household

demand, community participation, and neighbourhood effects in the face of rapid urbanization and integration with the global economy. Ultimately, this research aims to uncover the factors that allow inequalities in access to basic services to persist. Little research exists on how different types of households vary in their response to the well-documented existence of parallel private markets for services such as water, sanitation, health and transportation in less developed countries (Moran & Batley 2004; Budds & McGranahan 2003; Collignon & Vezina 2000) or how the exercise of voice affects access to water and sanitation services. This paper makes a contribution to the literature on access to basic services in the Global South by providing empirical documentation of how access is locally defined at the household level and how citizen/user perceptions of access affect strategies for sourcing and consuming water.

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