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CHANCE 2 SUSTAIN

Prospects for Spatial Knowledge Tools in Municipal Budget Systems with a Focus on Property Tax Issues

By Glen Robbins[1]

The past few decades have witnessed an ongoing process of reform in local government systems across the developing world. These have been influenced by parallel processes of citizen pressures for greater influence in governance processes alongside the ever-present influences on governance reform originating from dominant agendas in globally influential policy organisations. Around the world, such political and administrative decentralization processes have been accompanied by varying degrees of engagement with spatialized data and knowledge. The research in the Chance2Sustain project has provided some insights into the potentials and pitfalls, for both administrators and citizens, associated with enhancing connections between forms of spatialized knowledge and municipal fiscal processes, particularly in the realm of property taxes.

The context: Decentralization and municipal fiscal matters

As has been common across many nations the processes of political and administrative decentralization have also been a noted feature of the four countries studied in the Chance2Sustain project. All have been through processes where powers and functions granted to local authorities have been enhanced relative to those of national/federal and provincial/state structures of government. These processes, although varied, have also been accompanied by a range of fiscal reforms, whereby greater portions of national public budgets have been allocated to local government endeavours and where local governments themselves have been tasked with raising their own revenue sources in carrying out their duties. Whilst these processes have not been immune from counter movements, for example in terms of a growing role in some countries of conditional budgeting by national levels actors, the tendency, especially with regard to cities, has been for local governments to have a widening set of mandates, alongside growing fiscal allocations, greater allocative powers, and general financial management.

Although reforms related to local government have been somewhat sluggish in India[2], there have been discernable steps towards an enhanced role for local government in decision-making. Major fiscal allocations to programs intended for urban local government areas – such as that under the Jahawal Nehru National Urban Renewal Mission (JNNURM) – have seen India start to redress the issue of decades of under-investment in urban infrastructure and housing. Indian states and local governments have also been experimenting with processes of engaging citizenship in these processes over and above the somewhat varied experiences of the decentralized allocations to

1 The author is grateful for comments received from Isa Baud, Sri Sridharan, Liliana Miranda, Guillermo Takano and Adrian Gurza Lavalle.

2 In this context the enormous scale of the Indian endeavor needs noting, in a country of over one billion people with such development challenges.

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elected officials. In Peru, the reforms to democratize the country have also seen a renewal of the role of local government and rapidly rising allocations of national funding to cities although a lack of clarity often remains in the practical distribution of power between spheres of government in a context where, especially in a primary city such as Lima, national government actors remain very involved in decisions and processes and, in many cases, continue to dominate them. In Brazil, in recent decades, the role of local government has been enhanced as contestation of city elections has been a key factor in the distribution of power in the various states and at the federal level. The country stands out, among the four cases, as having a greater degree of effective decentralization and devolution together with scope for citizen engagement in ways that other countries are only starting to explore. South Africa has sought to create a strong constitutional foundation for local government to have its own powers alongside those of provincial and national government. Processes of post-1994 democratization have sought to combine forms of national policy alignment through conditional allocations along with local government having considerable autonomy in allocation of its own revenue sources – which for the major cities makes up the bulk of local government income.

Property taxes and spatial knowledge

Municipal property taxation has been an area of considerable policy reform in light of these decentralisation and devolution processes, as greater emphasis is placed on local governments sourcing larger shares of their total revenue from within their administrative areas. Although property taxes have been a feature of local government for a long time, it is their prominence in existing and projected revenue that suggested they deserve further attention. Property taxation at the municipal level requires systems for tracking combinations of market and administrative values of land and built structures as well as the details of ownership associated with these assets. This has lent itself to GIS-type mapping activities as local governments try to link property cadastres with relevant taxation variables.

These changes in how property tax data is captured and represented have occurred alongside innovations in how local governments and other urban actors utilize data which is spatially referenced in a range of administrative, consultative and decision-making processes. The most ubiquitous of these has been the growing presence of Geographic information Systems (GIS) and related mapping/geo-locating of data and knowledge resources used or potentially usable in urban governance processes. These have graduated from being exclusively technical tools used by a narrow range of skilled urban development professionals to being either referenced or even constructed using both low-tech (participatory mapping) and high-tech (Google Earth type tools) by an ever-increasing array of actors. This has seen adoption of techniques to extend both the horizontal coverage of spatialised data (across a greater range of "sectors") and also the vertical coverage with more and more information on specific fields being gathered and/or analyzed in a spatially referenced manner (matching water billing or consumption data or complaints data with locational data).

However, the adoption of this spatialised approach to data has tended to be uneven across the offices of those running municipal finance departments, perhaps with the important exception of the necessity, for some local governments, to build data-bases of properties and their associated property values/development status for the growing focus on property tax systems for municipal revenue. In the field of property taxation, it has often been the revenue managers in Municipalities that have been first movers in seeking technological support for better administration, although it should be noted that at times this has resulted, at least in part, from public pressure over concerns of administrative fairness or a lack of transparency.

Emerging and potential future connections: property tax and spatial knowledge production

The Chance 2 Sustain research has revealed some emerging practice around the spatial knowledge production and property taxation. At the most basic the trend of using GIS mapping to reflect property boundaries and related property tax information has already been noted. However, beyond this rather functional relationship there have also been some practices suggesting further potential to enhance wider governance outcomes from interrogating this relationship.

In Durban, South Africa, the city authorities have invested very heavily in generating accurate GIS-based maps with layers of data related to property descriptions, ownership and zoning.[3] These have been integrated with valuation rolls, which provide the basis on which municipal property rates can be calculated. This process has been a highly technical one in which the municipality used its internal expertise and external consultants to build a robust data system that allowed links to be made between GIS shape files and property records. As the system has evolved aspects of it have been made public to allow interested parties to make searches by address to establish property ownership and the value attributed to the property.[4] Officials note that this has enabled those wanting to compare their property rates assessment with similar properties are able to do so and also had the benefit that property owners' complaints about errors or inconsistencies help with improving the coverage and accuracy of the data. Although the intention in making the data public was not informed directly by transparency considerations, these have been reinforced by the accessibility of the system. The system does not yet have public data on properties in lower income areas (as the majority of properties are exempted from property rates) and have no coverage of informal settlement properties, unless a private individual or company owns the underlying land.

The mapping of infrastructure networks has also fed into municipal finance and budgeting processes in a number of ways. For example in Durban, data on volumes of water and waste water in pipelines, pump stations and reservoirs has been matched with revenue patterns to help with budget calculations about mismatches between capacity and revenue. Although not available in the public domain, this data has provided a source of technical input into budget processes for relevant departments. In other municipal processes up-to-date maps of services and infrastructure have been used to help in community meetings with authorities to discuss possible future development needs. These have been very important in the decision-making processes of the eThekwini Municipality elected councilors where data has been used to generate "access to services" indicator maps by relevant municipal departments to try and avoid mismatches between investments and needs. eThekwini Municipal staff have also worked to map some categories of capital spending by municipal wards, providing residents with access to the municipal website with indications of recent and planned capital projects in their areas.[5]

Property taxes are also a key feature of city revenue in Brazil. In 2001, the Labor Party (PT) elected for the first time the city mayor of Guarulhos and has retained power since then. From the outset, PT officials in Guarulhos brought into office a working philosophy anchored in three principles: 1) citizen participation; 2) consider the whole city and not only downtown and middle class areas, giving priority to the periphery and 3)

3 For some examples of what can be found on the eThekwini Municipality Corporate GIS system see - http://www.durban.gov.za/Online_Tools/Pages/City-Maps.aspx .

4 The search system can be seen at http://www.durban.gov.za/Online_Tools/vroll/Pages/default.aspx. Click on "General Valuation Roll 2012" to explore the system. As an example select "Full Title Property" and then click "Go". In the search categories offered enter "1" under street number and "Old Main Road" under street name and then click on the search button. You can then select any of the listed property options to have a look at property rate details. These details can be then used to request a cadastral description from the municipal GIS unit.

5 Examples of this can be seen at http://www.durban.gov.za/Online_Tools/Pages/Community-Profiles-2011---2016.aspx (enter any municipal ward number between 1 and 103 as there are 103 wards at of 2014).

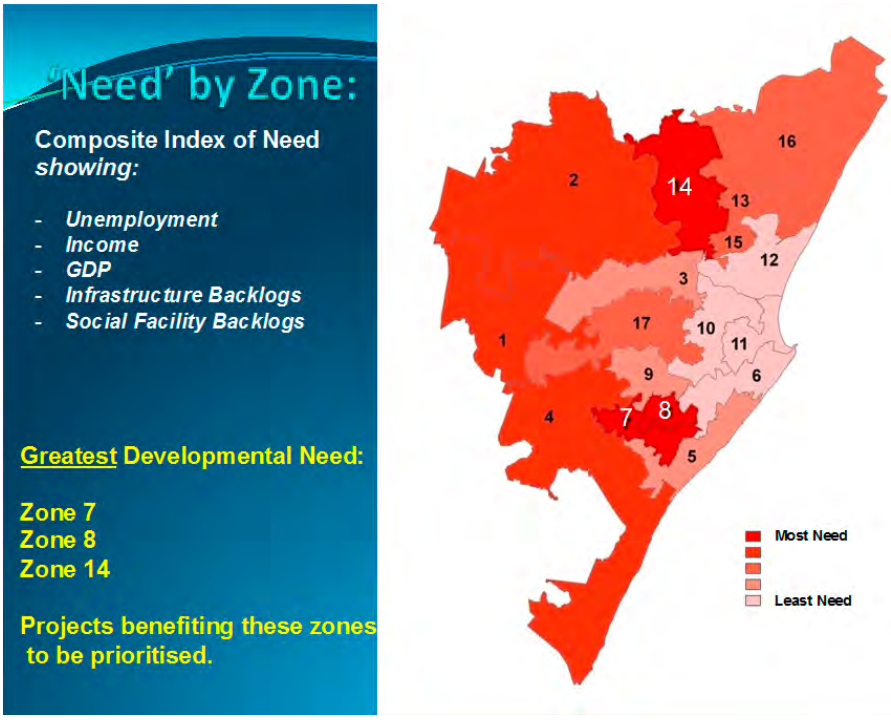
administrative modernization. This has seen the spatial knowledge production efforts extend well beyond the more limited role in property tax management. The city's experimentation with participatory budgeting, through the Participatory Budget Office (OP) has sought to actively utilize available technology to display local needs and local allocations in terms of budgets. These developments have a very strong focus on providing user-friendly interfaces mainly for less educated people with the main goal being offering wide access to information and basic services in less complicated and bureaucratic means. "Tecnologia Cidadã" (Citizen Technology) and "+ Fácil" (Easier) are two such interfaces with bigger fonts, many drawings and more direct and simple language without jargons and technical terms[6].

Prioritizing citizen participation and the periphery has meant that planning could no longer be restricted to the office place and drawing table. It needed to include a variety of stakeholders and know the reality in several neighborhoods in the peripheral zones of Guarulhos. There was a need for information, data gathering and better understanding the processes at work that were shaping Guarulhos. The GIS department was central in this process. The current GeoCorporate Platform is foreseen as key for planning. Rather than being an IT project per se, the GeoCorporate Platform has been framed and foreseen as a broad information management project with direct benefits and added value for professionals implementing and monitoring public policy, including urban planning. This represents a shift in the planning mentality and way to run public business in Guarulhos. In a general sense, this shift is triggering significant changes in regard to involving actors and their role in data production and use.

In India the relative importance of GIS systems and their use in wider city processes and property tax matters has grown, particularly in the larger cities. This has been

6 Some of these tools can be seen on this internet platform: http://www.tecnologiacidada.com.br

Figure 1: Example of eThekwini Municipality Index of Need maps used in internal budget allocation discussions



Source: Index of Need presentation for eThekwini Municipality. Provided by Infrastructure Planning staff. March 2010

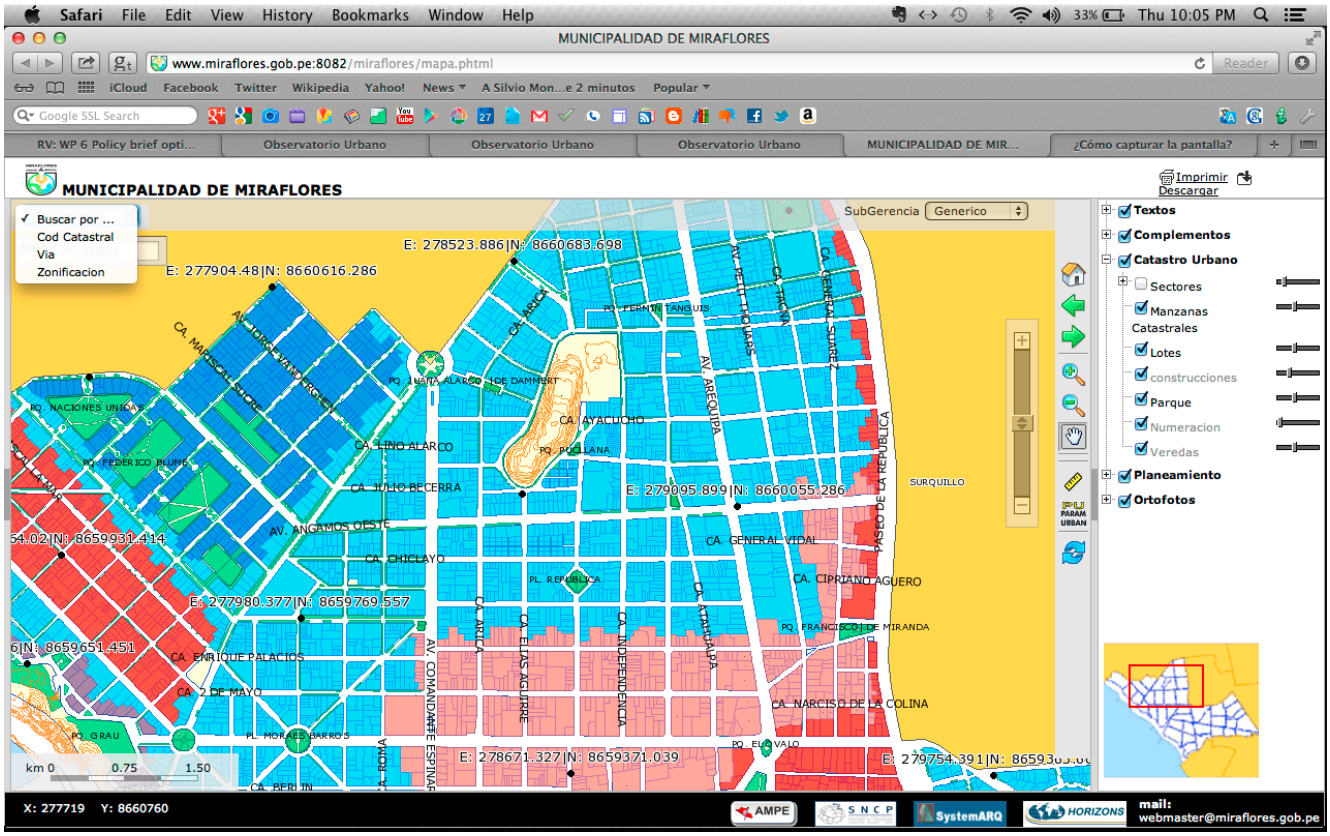
supported through some urban local government reform finding from national government. Similar efforts have been seen in a number of Indian cities as tax assessments on properties have been prioritized as a source of revenue and there has been greater contestation about the lack of transparency and the ability of wealthier property owners to reduce their tax obligations. In some areas of Delhi this has been critical in ensuring a more progressive distribution of property tax obligations and in attending to efforts of civil society groups geared towards reducing discrepancies.

Property taxes are an important source of municipal revenue in Peru, although the transfers from national revenue continue to dominate in municipal areas. For most district municipalities in Lima Metropolitan area there exists a well-developed GIS system, which is updated and introduces precise measurements and geo-referenced allocation of plots and constructions used in property tax systems. However, none of these are connected to each other. Better of district municipalities such as Miraflores, Surco, San Isidro and La Molina as well as Callao Province Municipality have invested heavily in this technology with an aim of providing information to potential property investors.

The Ministry of Housing merges cadaster databases (developed by district municipalities) with official land valuations. After signing an agreement municipalities can buy land value information based on their own cadaster maps for taxing purposes. Their idea is to eventually expand the use of cadaster now used only as a pure taxation instrument to become an instrument of land use management and development. Indeed municipalities have to use 2% of total taxation for cadaster and planning issues but they do not, especially considering the very low existing levels of taxation and the very high operating costs.

The ministry has recently implemented their urban observatory that is still in progress http://eudora.vivienda.gob.pe/OBSERVATORIO/index.php. It counts with important

Figure 2: Cadaster online platform of the Municipality of Miraflores



Source: http://www.miraflores.gob.pe:8082/miraflores/mapa.phtml

information related to spatial planning in many cities including Callao. Since Lima has its own planning unit, the ministry does not produce knowledge related to the city. Unfortunately their property appraisal maps have not been uploaded yet[7]. The Commission for the Regularization of Informal Property COFOPRI counts with an on-line cadaster system for accessing to the information of each urban and rural plot[8].

Whilst these varied examples of emerging practice have yet to be shown to significantly enhance participatory governance in the case study cities, they do begin to illustrate the potential that might exist as city authorities and other stakeholders seek to make connections between spatialized knowledge (mapping), budgetary-linked processes and providing information to citizens. Whilst this might have its most direct associations with issues of property data for valuations and taxation purposes this need not be the only connection between budget-type processes and spatial knowledge production. The comments which follow represent some areas where further engagement could open new spaces for engagement.

Beyond property taxation maps

The few examples documented here as well as other experiences of the case study cities suggest that the cultivation of connections between budgetary processes in cities and a variety of spatialised knowledge and information systems can offer some potential in terms of a range of issues. Some of these potential impact areas are set out below:

1. As a record

   Both from a technical and an accountability perspective mapping of 'projected spend' areas (largely in terms of capital spend) and of 'actual spend' over a period of time provides a sense of the cumulative activities of the public sector in different areas of the city (usually at ward level). Spreadsheets showing allocations and actual spend, even if grouped by area over time, can help clarify spatial distributions (or gaps), but the main power of mapping this data as a layer in a GIS system is that comparisons across wards or different aggregation levels can be made more effectively.

2. As a decision-making tool

   Not only are records of past or planned budget processes important for effective governance, but their assessment when connected with mapping differences and, critically, with other sources of data can contribute substantially to more effective decision-making. For example, if decision-makers can see the coincidence between areas of extreme poverty and areas of arrears for municipal services this could help such decision-makers gain a clearer picture of processes informing some city outcomes. It could also be the case that allocative efficiency could be enhanced through such processes.

3. Transparency and accountability

   Mapping official data does offer the potential for a degree of enhanced accessibility and transparency in that it links activities to particular areas or locations, which in turn allow for on-the-ground verification. This transparency can contribute to enhanced accountability if stakeholders are in a position to work with the material. Accountability can also be enhanced through a more bottom-up mapping of community needs which can be integrated into formal municipal data systems to allow for comparison with proposed and actual municipal responses.

7 See http://eudora.vivienda.gob.pe/OBSERVATORIO/planosarancelarios.php for available material from Lima.

8 See http://www.cofopri.gob.pe/index.aspx?flag=1 for information on the COFOPRI system.

Some concluding comments

The potential for spatialised data to be used in enhancing development outcomes has been widely argued. GIS systems have been increasingly taken on board as administrative and management tools in supporting property tax systems in cities. The here are two features of this trend that need ongoing attention amongst policy makers when considering the scope for these systems of spatial knowledge production to support improved governance outcomes. In the first instance the data that is used in such property tax systems does need to enhance transparency and citizen access to ensure the systems are exposed to sufficient external scrutiny in that they avoid a bias to the powerful land-owning groups. Secondly, the GIS systems have considerable potential to be utilized in wider municipal budget and fiscal processes. Not only can technical production of spatial knowledge help inform budgets but such systems can also contribute to citizen participation platforms where needs are captured for budget discussions and ultimate allocations. For these potentials to be realized it is important that actors within and outside municipal structures be equipped to work with these systems and the related tools to avoid them becoming another layer of complexity which ends up excluding people.

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Chance2Sustain examines how governments and citizens in cities with differing patterns of economic growth and socio-spatial inequality make use of participatory (or integrated) spatial knowledge management to direct urban governance towards more sustainable development.

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