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Infrastructure Investment in a Messy Urban Growth Scenario: The Role of Land Value Capture Instruments in Argentina

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Abstract

The objective of this study is to explore the feasibility of widening public funding of urban infrastructure investment using land value capture (LVC) tools in the Metropolitan Area of Buenos Aires (MABA), Argentina. Over the last 15 years, this region has experienced a highly disorganized urban growth accompanied by low investment in urban infrastructure. The study reviews the nature and experience of LVC tools, particularly in Latin-American countries, with a special emphasis in the cases where income distribution is very unequal. Based on a detailed analysis of the situation in MABA (income distribution, urban growth, land price trends), a simulation model of a typical municipality is developed to represent alternative schemes of betterment contributions and urban investments. Lessons from the international practice and the results of the simulation model are combined to draw recommendations for the MABA case. The study concludes that betterment contributions are well-adapted instruments for financing infrastructure projects that could benefit a wide range of households in specific areas of the MABA. This instrument has the advantage of being already in use at several municipalities of the metropolitan region. The analysis also indicates that under the current regional socio-economic scenario, the balance between the rate of the betterment contribution and the impact of the improvement (measured through land valorization) is a key feature to gain acceptance in the urban planning endeavor. The results suggest that the kind of investment (affecting the quality and/or the quantity of land) may be important in terms of welfare and income distribution results. Finally, policy recommendations include the need to consider the distribution of the levy burden considering current income levels instead of connecting it to the increase in the value of the land plot. One possibility is to spread the cost of the levy collection over a longer period using the financial market to cover for the gap. Another option is to associate the implementation of betterment contributions to the urban plan, allowing for the anticipated collection of the revenue earmarked to the development of the projects.

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Introduction

Over the last 15 years, Argentine cities have experienced a highly disorganized urban growth characterized by territorial dispersion and very low urban density. This feature has been particularly dramatic in the Metropolitan Area of Buenos Aires (MABA). At the same time, institutional and budgetary fiscal weaknesses resulted in a severe under-provision of urban infrastructure, particularly, in the periphery of urban agglomerations.

Over this same period, the increase of fiscal decentralization in developing countries, including Latin-American ones, and the recognition of the importance of a sounding local public finance for achieving full social and economic development, led to the improvement of traditional fiscal instruments at the subnational government levels. For instance, land tax was reconsidered and enhanced to increase its contribution to the municipal revenues, and innovative fiscal instruments began to be applied to financing urban infrastructure (private-public partnership; concessions and privatization of public utilities; land value capture tools).

Considering this scenario, this study explores the use of land value capture instruments (LVCs) to improve the financing of urban infrastructure in locations where urban growth has been poorly planned in Argentina, particularly taking into account the wide income dispersion of households in the affected areas.

The main questions to be answered by our analysis are:

- Which are the redistributive aspects of LVCs to be taken into consideration when they are applied in an urban location characterized by highly unequal distribution of income and wealth?

- Could these distributional aspects jeopardize the effective use of LVCs? Considering this scenario, which alternative designs of LVCs should be considered?

- Under which circumstances coordination with other fiscal instruments (such as the property tax) could be useful?

The study is organized in four main sections. The first section reviews the available literature on case studies about LVC implementation, paying attention to the underlying social conditions of each case. The second one describes the Argentine case while the third section provides a simulation exercise for MABA showing the feasibility of alternative LVCs. Finally, the study concludes by presenting a synthesis of the results and some policy recommendations.

The Role of Land Value Capture Instruments (LVCs) in Developing Countries

International Experiences with Land Value Capture Instruments

A wide range of fiscal instruments has been implemented over the years in an attempt to capture the value generated by public actions that affect land prices. Although all these mechanisms use land value as a basis for financing urban infrastructure improvements, they represent legal instruments that widely differ among each other in their strategy and implementation. Several authors have set different categorizations of the instruments according to their characteristics. In general, the type and nature of the project will determine the advantage of choosing one of these instruments[1] (figure 1 presents a synthesis of LVC instruments and a glossary is included in the Methodological Annex).

In addition to providing a source of public finance, many authors point out the idea of value capture as a wealth redistribution instrument. The theory behind these instruments bases the rational of the levy as the recapture of part of the "unearned increment" in land values of certain property owners whose actions played no part in changing the property value. The notion is then to mobilize and share to the whole community the benefits that usually end up in private hands when the costs of providing urban infrastructure and services are socialized (Smolka 2013).

Numerous empirical studies that review different countries' experiences agree that effective implementation remains the primary challenge. The feasibility and efficiency of each instrument will depend specifically on the type of project, the policy goal pursued and the conditions under which they develop. However, international experiences help us identify possible advantages and disadvantages.

For instance, administrative conditions for implementing a betterment levy include the capacity to quantify the impact on land values; identifying the beneficiaries; and the political will together with the public mechanism to implement the levy (Day 2005). Bahl and Wallace (2008) include a similar list. Each stage represents an administrative and political challenge. While the rationale of these instruments seems quite simple and fairly reasonable, many authors question why these policies have not been more widely adopted around the world and attempt to identify reasons for this lack of implementation. These include some of the instrument's drawbacks such as technical difficulties in measuring the increment in value generated by public interventions and its interpersonal distribution; the risks of high initial costs and implementation problems; and in some cases, general public resistance (Blanco et al. 2016). Smolka (2013) points out that successful implementation demands management skills to deal with many complex factors (that is, benefit valuation; allocation of tax burden; collection methods) and proper understanding of land market conditions. A work produced by the Global Land Tool Network (GLTN) and UN-Habitat concluded that effective LVC systems demand decentralized authority to implement it. However, in the case of developing countries, a proper valuation and revaluation of land requires

[1] "The idea that the increased value of the land is created by public action and, consequently, should be recaptured for the society as the principle over which land-based financing builds is by no means new. In fact, betterment levies have been around since the Roman Empire and are probably the oldest form of land value capture" (https://blogs.iadb.org/ciudadessostenibles/2016/01/08/betterment-levies/).

authorities to incur in setup and operating costs, which might be beyond the reach of most subnational government tax administrations.

In line with these shortcomings, the implementation of LVCs is often designed as a cost recovery mechanism and the amount of the land value captured is limited to the cost of a specific infrastructure investment. In any case, the use of LVCs also requires the identification of benefited land followed by a proper allocation of the share of the cost to each plot, considering the relative levels of benefits received and the payment capacity of each property owner. This last aspect is the main concern of this study.

Figure 1: Land Value Capture Instruments—Definitions

Urban development is a result of a combination of private and public decisions. In modern societies, local governments have an important responsibility in terms of urban planning. Their actions impact on private owners of land improving the value of their properties. This change in value has received alternative denominations: development value; betterment value; planning gain; plus value (in the Spanish tradition), etc. In all cases, the increase in the value of the land due to public improvements is identified as an unearned increment accruing to landowners. Local governments apply taxes and fees to recover the value created by the public action and, in general, use the revenue to finance new investments. (Other government goals mentioned regarding the use of LVCs are the intensification of land value taxation and the control of land use)

In practice, betterment values can arise from different public actions within an urban plan (public investments in infrastructure and services; beneficial changes in land use norms and regulations; etc.) Accordingly, land value capture instruments present an array of cases associated to this variety of public actions. Over time, experts have elaborated a comprehensive enumeration of these instruments considering their characteristics (direct/indirect; negotiated/compulsory; etc.) and/or the frequency of their use in practice.

For instance, Smolka and Amborski (2000) categorize LVCs as taxes; contributions; fees; exactions; and regulatory charges. Later, Smolka (2013) organizes these same instruments within three groups: taxes and fees; including betterment contributions; exactions and other regulatory charges for building rights; and a variety of tools used in large urban development projects. Alterman (2012) states a categorization distinguishing between direct and indirect instruments. Direct instruments are related to the recovery of unearned increment in land value due to general development (land taxes) or to a specific public action such as an investment or change in land use regulations. Betterment levies are a classic instrument for direct collection of increased land value. Indirect instruments are aimed at generating revenues (or in-kind substitutes) for specific public investments or services. Selected examples are exactions, impact fees and linkage fees. Blanco et al (2016) enumerate the following LVC instruments: betterment levies; building rights charges and exactions; tax increment financing; and land readjustment arrangements.

Depending on the characteristics of the improvement and the nature of the LVCs instruments used, the burden of the recovery can be decided unilaterally by the government, based on technical considerations. In those cases, payment is of compulsory compliance by the benefitted agents. Alternatively, in the case of specific projects or readjustment arrangements, for instance, the payment can be negotiated with landowners and/or urban developers.

Source: see the Glossary section

For many of these approaches to succeed, they must be understood and accepted by the taxpayers.[2] For this to happen, fair and transparent practice from public agencies together with public engagement in the decision-making process should be promoted (Walters 2012). Legislation should determine in advance the conditions under which the levy will be applied and make a proper communication about the use of the proceeds and revenues in general. This may also be encouraged by the direct link between the tax collection and the benefits that results from the levy being collected and administered by local authorities, who can potentially improve allocation of public goods at the local level.

LVC instruments from the regulatory category (such as land readjustments or transfer of development rights) usually involve some kind of direct negotiation of a payment, whether cash or in-kind, between the developer and the local authority in exchange for the land-use regulation permit. This is often the case in advanced countries through the granting of planning permissions for urban development to private business.[3] However, direct negotiation might be subject to lack of transparency or mere corruption episodes. For instance, the case of Poland shows the inconvenience of allowing for too much discretion to local authorities (Brooks et al. 2011). Latin America offers many examples of questionable public decisions regarding allocation of investments in urban infrastructure; services; and arbitrary land use norms and regulations (Smolka 2013). The legal framework becomes especially relevant in this context to set the rules and avoid these tools to be open to bias and favoritism.

The concern on the impact of LVCs on income distribution is less frequently mentioned in the literature and is often associated to the experience of developing countries. For instance, in South Africa, where this aspect has been explicitly considered, their authorities stated that betterment contributions are progressive as owners of large properties must pay more (thus, complying with the ability to pay principle) but recognizing the need for tax relief of poorest cohorts. In Colombia, according to Borrero Ochoa et al. (2011), under the Medellin model for LVCs implementation, the parameters used to calculate betterment contributions include considerations on the affordability of the levy (see next subsection).

LVCs in Latin American Countries: Implementation in an Income Unequal Scenario

Land value capture is a longstanding practice in some Latin American countries (LAC) such as Argentina; Brazil; Colombia; Ecuador; Guatemala; Honduras; Mexico; Nicaragua; Uruguay; and more recently, Panama (Borrero-Ochoa 2014). Currently it is gaining importance as an element

[2] Holland (2018) argues that the absence of recurring payments and the fact that they are designed as a source of financing for specific projects should associate these tools with higher levels of popular support compared to other financial instruments. However, in an experiment designed to test how different financing options alter support, the author discovered limited popular understanding of the mechanism of betterment levies, especially by those who wouldn't be affected by the levy. This result implies much could be done by city officials to educate residents. Walters (2012) notes that betterment levies are politically very unpopular and difficult to collect but recognizes that they can be effective for specific projects and situations.

[3] Smolka (2013) classifies value capture tools in voluntary or negotiated vs. compulsory. Alterman (2012) distinguishes between direct and indirect value capture. The former is related to unearned land value that is recovered by the government and the latter are the ones negotiated with developers to finance public expenses due to the project such as in the cases of UK; Israel; and USA.

for financing urban infrastructure in these countries, where cities are growing rapidly, and urban planning challenges must be addressed (Blanco et al. 2016).[4]

In our region, fiscal instruments to capture land valorization due to public action have been adopted even in absence of regulation by a general legal framework, which in many countries surged following the success of individual cases. On one hand, this suggests how existing instruments may be adapted to different circumstances and places without a national legislation designed to guide them. On the other hand, many authors point out to the absence of a legal framework as one of the reasons why value capture is far from reaching its full potential in LAC. In fact, when they do exist, they are not regulated or consistently applied (Smolka 2013).

In practice, LVCs have proved a powerful tool that can help fill in specific gaps in the infrastructure financing plan of the region (Peterson 2008). Successful experiences in Latin America and other developing countries in the past few years are promising for local governments. The challenge is to achieve a successful implementation in a context of rapid urban growth, unequal income distribution, and limited operation capacity at the subnational government level.

Affordability and willingness to pay for the urban improvements are two key elements for the successful implementation of LVCs in our region. Borrero Ochoa (2011) refers to this as “social acceptability”. This author also describes the participative process displayed by governments to gain support for the project and the financing mechanism, including the possibility of negotiating the contribution burden by affected neighbors.

In fact, the issue of the payment capacity of the contributor is recognized as a problem in most of the countries in Latin America and the Caribbean (LAC) that apply this type of levy, but the solutions are scarce and unsatisfactory. In general, the procedures to apply the levy do not include the study of the contributors’ payment capacity, although in some legislation it is explicitly stipulated (Honduras; Brazil; Panama). In Guatemala, the social service pays visits to the contributors that present claims to be exempted (Borrero Ochoa et al. 2013). Colombia is the most advanced country in the evaluation of the payment capacity in the LAC region. In the case of properties of residential use, the authorities use data of the household survey on living conditions and the national income and expenditure survey 2006–2007, which collect information on the employment conditions, income and expenses. They evaluate the component of “other expenses" and appropriate 20 percent of this item to be applied to the payment of the contribution (Borrero Ochoa et al. 2013).

Regarding the relationship between income distribution and LVCs, Smolka (2013) discusses the idea of betterment contributions as an anti-poor levy and summarizes the experience of Peru, where a successful infrastructure program in a low-income neighborhood used a contributory tool to finance public works.

[4] Smolka (2013) indicates that exactions are the most common value capture tool used throughout Latin America. When they are applied, landowners are compelled to make cash or in-kind contributions to obtain special approvals or permission to develop or build on their land. These contributions may be stipulated through subdivision or negotiated on an individual basis.

Blanco et al. (2016) develop a simulation for the implementation of betterment contributions in two Mexican cities (Xalapa and Quetzaltenango) and they distribute the burden of the betterment levy on the households according to the position of their property in a quartile distribution of property value. This assumes that the greater the cadastral value of the properties, the greater the impact of the improvements and greater would be the household ability to pay for the contribution. In the next section, the analysis of the Argentine case will show that this assumption cannot be generalized to other cases.

In the experience of developing countries, it is widely recognized that investment in urban infrastructure has a very high rate of social return. However, the kind of infrastructure involved makes a difference from the point of view of the local user. Moreover, expansion of public domiciliary services (drinking water; energy; etc.) is highly valued by the population but not every household can afford a monthly payment for them. Thus, even though the availability of natural gas, energy or drinking water and sewerage are desirable for both private and public agents, some households will not be ready to pay a contribution for their expansion.

This same effect is also noticeable when the public investment is in roads, for instance. In this case the improvement capitalizes on the value of the land and households will also experience some direct benefits such as the reduction of the commuting time to work or the reduction of security risks in their neighborhoods. They may value the public investment but in many cases the valorization of their plots is not perceived or is less important as compared to the fact that they have to pay for the investment using their current income, which is completely applied to keep their standard of living. On top of that, a higher price of land might translate into an increase in the property tax in the future. Instead, in the case of shops and industries, this kind of investment and their derived benefits are translated not only in land value but also into higher revenues. Targeting business activities to pay relatively more for urban investments could be a feasible alternative for local governments.

Finally, one popular critic to the implementation of LVCs in developing countries is the fact that they charge for the improvements but they do not always compensate households for the reduction in their land value when an investment has negative side effects (such as in the case of centers of waste disposal or landfills).[5]

The Case of the Metropolitan Area of Buenos Aires: Messy Urban Growth and Poor Financing of Local Governments

Over the last 15 years, Argentine cities have experienced a highly disorganized urban growth characterized by territorial dispersion and very low urban density. This feature has been particularly dramatic in the Metropolitan Area of Buenos Aires (MABA),[6] where approximately one third of the total Argentine population lives (14.8 million inhabitants) and 35 percent of the

[5] Alterman (2012), studying 13 country cases confirms this asymmetric treatment as a frequent feature.
[6] The Metropolitan Area of Buenos Aires ranked as the 30th largest urban agglomeration in the world according to population size in 2016. https://www.weforum.org/agenda/2018/10/these-are-the-megacities-of-the-future/

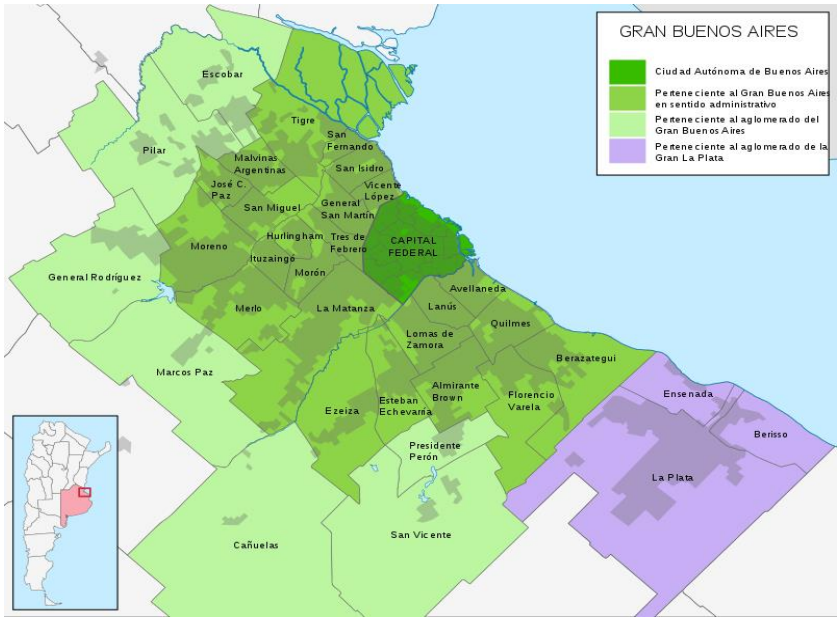
country´s companies are located. This metropolitan region is the largest in Argentina and it exhibits a complex level of institutional fragmentation.

Inefficient regulatory schemes at the municipal and provincial level along with a lack of government coordination and a process of highly unsatisfactory economic growth have been important factors that explain this poor urban growth pattern. At the same time, fiscal weaknesses resulted in limited urban infrastructure investment in new urban development projects.

Being an urban region in expansion, the composition of the Metropolitan area is, in itself, also subject to different definitions. Here we adopt a broad definition following the Territorial Strategic Plan of the Buenos Aires Province, as described in figure 2.

Figure 2. Metropolitan Region of Buenos Aires (MABA)

The MABA covers 13.97 km^2 and is organized in 40 municipalities (*partidos*). Three urban rings are also defined according to the following criteria: urban density, availability of public and private services, and transport mobility. Buenos Aires City is the inner city of this urban agglomeration.



Urban rings:

Ring I: Avellaneda; Lanús, Lomas de Zamora; Quilmes; Tres de Febrero; General San Martín; Morón; Ituzaingó; Hurlingham; Vicente López; San Isidro; and San Fernando.

Ring II: Almirante Brown; Berazategui; Esteban Echeverría; Ezeiza; Presidente Perón; Florencio Varela; Malvinas Argentinas; José C. Paz; San Miguel; Merlo; Moreno; and Tigre.

La Matanza, the most populated municipality of the area, is split between Ring I and II.
Ring III: Escobar; Pilar; General Rodríguez; Marcos Paz; Cañuelas; and San Vicente.

Source: Strategic Guidelines for the RMBA (2012) *Lineamientos Estratégicos para la Región Metropolitana de Buenos Aires.* Ministerio de Infraestructura de la Provincia de Buenos Aires

Recent Urban Development and Income Distribution in the Metropolitan Area of Buenos Aires

In Argentina, as in many other Latin American countries, metropolitan areas have experienced rapid development in their outer suburban rings. At the same time, the majority of the cities still experience high levels of inequality, not only related to income but also related to households' welfare, such as disparate access to basic services and infrastructure (Goytía et al. 2015).

Goytía and Dorna (2016) analyze the relationship between urban sprawl and changing patterns of inequality and segregation in metropolitan areas of Argentina, including the MABA. figure 3 shows the evolution of the urban area of MABA between 2001 and 2010.

Figure 3: New Urban Developments in MABA (2001–2010)

Type of Development	Area in km^2	%
Infill	148	27
Extension	294	53
Leapfrog	110	20
Total	552	100

Source: Goytía and Dorna (2016)

Methodological note: The types of expansion of the urban area are: expansion by means of the completion of the urban fabric (infill); growth by extension of the urban area (extension); or sprawl as the disconnected extension of the urban belt (leapfrog). Information on urban sprawl was compiled for the 1990–2000 and the 2000–2010 decades.

The urban built-up area of MABA has grown by 38 percent in the period 2001–2010, equivalent to an annual increase of 3.7 percent, above the average annual growth of 3.5 percent for the other urban agglomerations of the country. As shown in the figure 3, half of this growth is due to the extension of the urban area and only 27 percent to its densification. Leapfrog growth includes both rich gated neighborhood developments and very low-income household settlements.

The general results of Goytía and Dorna (2016) show that for the main urban agglomerations in Argentina, recent urban expansion is a manifestation of growth; rising incomes; and increased land and housing consumption; coupled with a general preference for suburban living of several groups.[7] But particularly in the case of predominant leapfrog development, it may also be associated to segregation of the poor in the newly built urban peripheries of most cities.

[7] In the period from 2006 to 2010, Argentina experienced an episode of rapid economic growth like the rest of Latin American countries associated to the "international commodity boom".

Instead, in the case of the MABA (excluding Buenos Aires City), we find that built up area growth and leapfrog development is associated to richer families locating in the urban outskirts (gated neighborhoods) showing increased segregation of the rich, rather than the poor.

Over the period 2001–2010, four municipalities of the third urban ring of MABA showed a decrease in population density close to 60 percent. On the contrary, Buenos Aires City increased its average density by 5.5 percent, and La Matanza municipality by 11.3 percent. The absolute levels of population densities in the third ring of MABA increased the costs to provide basic public services and regular public transport. Thus, in addition to the efficiency aspects in the provision of basic infrastructure and public services, the observed pattern of urban expansion in MABA has a direct effect on the mobility and housing options, particularly for lower income groups (Peralta Quirós, T. and Mehndiratta 2014).[8]

How does this description match with income distribution on the territory? The general picture is displayed in figure 4, where the average per capita household income is presented for MABA (by "*comuna*" of Buenos Aires City and municipality of Greater Buenos Aires).

Adding to this information, figure 5 shows the territorial distribution of income by Census tract.

Three main characteristics are worth to be highlighted: a) Buenos Aires City and the northern corridor on the banks of Río de la Plata concentrate pools of very high income; b) the adjacent two urban suburban areas present a highly mixed income distribution situation with an average income that is half the one in Buenos Aires City; and c) household income diminishes on average in relation to distance to the central city.

[8] The deficiencies in public transport and the low-density growth of this urban agglomerate resulted in an increase in the "motorization" of circulation within the region, with losses in the wellbeing of the population due to increasingly long journeys and risks. While in the early 1990s 25 percent of the trips in the region were by car, at the end of 2000 that percentage had changed to 45 percent. Given that the substantial part of public transport is made up of trips to work, a loss of labor productivity as a result of congestion and delays is also highly probable.

Figure 4: Household Income Distribution in the Metropolitan Area of Buenos Aires (Per Capita Monthly Values, Second Semester, 2010)

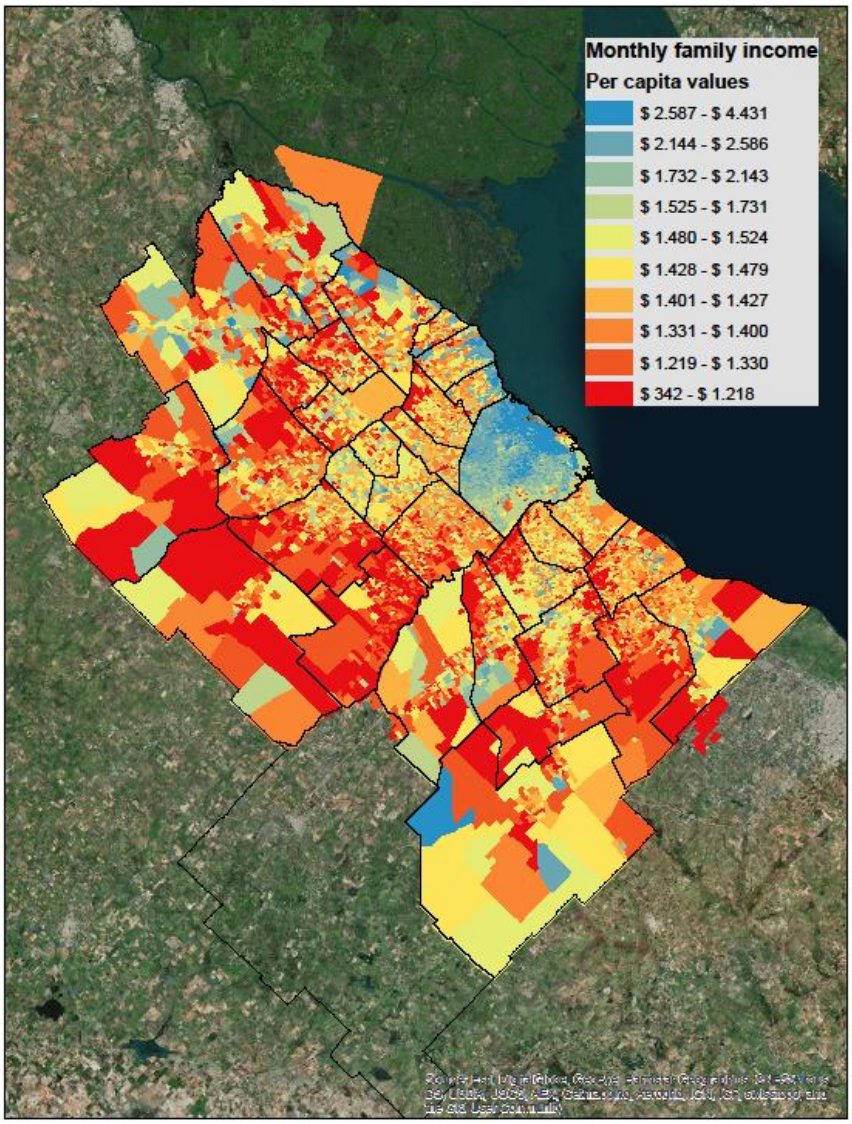
Metropolitan Area of Buenos Aires
Per capita Household Income

Buenos Aires City	Average per capita household income	Minimum value	Maximum value	Standard deviation	Variability coefficient (in %)
Comuna 1ª	2.376,2	1.148,2	4.431,4	895,8	37,70
Comuna 2ª	4.197,6	1.347,8	4.431,4	477,9	11,39
Comuna 3ª	2.087,1	1.416,2	4.431,4	365,9	17,53
Comuna 4ª	1.806,4	1.218,6	4.351,3	299,8	16,60
Comuna 5ª	2.444,9	1.745,2	4.431,4	664,6	27,19
Comuna 6ª	3.180,2	1.872,4	4.431,4	844,8	26,56
Comuna 7ª	2.106,4	1.137,3	4.351,3	474,7	22,54
Comuna 8ª	1.666,4	1.082,3	2.206,0	161,3	9,68
Comuna 9ª	1.837,3	1.177,8	2.586,2	193,9	10,55
Comuna 10ª	2.013,4	1.710,8	2.609,3	188,5	9,36
Comuna 11ª	2.301,7	1.710,8	4.351,3	483,4	21,00
Comuna 12ª	2.568,0	1.631,7	4.431,4	693,9	27,02
Comuna 13ª	3.943,5	1.946,4	4.431,4	709,6	17,99
Comuna 14ª	3.928,0	1.810,6	4.431,4	744,7	18,96
Comuna 15ª	2.371,5	1.609,9	4.391,4	619,6	26,13
Average Buenos Aires City	2.588,6	1.504,4	4.019,8	521,2	20,01
Partidos del Gran Buenos Aires					
Almirante Brown	1.390,1	510,2	3.247,1	204,2	14,69
Avellaneda	1.439,7	795,0	2.397,1	122,8	8,53
Berazategui	1.418,6	704,3	2.319,6	169,1	11,92
Cañuelas	1.223,2	949,1	1.499,5	169,8	13,89
Escobar	1.439,4	890,4	2.586,8	265,9	18,47
Esteban Echeverría	1.399,7	552,1	2.840,5	215,2	15,37
Ezeiza	1.377,3	638,6	1.840,3	167,8	12,18
Florencio Varela	1.309,0	612,7	1.616,6	162,3	12,40
General Rodríguez	1.340,9	757,7	1.798,6	160,9	12,00
General San Martín	1.403,4	550,0	3.134,7	211,3	15,06
Hurlingham	1.443,0	717,5	2.731,3	166,3	11,53
Ituzaingó	1.518,2	1.180,4	2.958,0	205,5	13,53
José C. Paz	1.319,7	795,4	2.385,5	197,8	14,99
La Matanza	1.343,2	550,0	2.473,1	176,3	13,12
Lanús	1.413,9	622,0	2.381,0	156,9	11,09
Lomas de Zamora	1.413,9	342,9	2.834,9	267,7	18,94
Malvinas Argentinas	1.359,8	875,6	2.637,7	184,9	13,60
Marcos Paz	1.322,5	830,0	2.102,9	205,1	15,51
Merlo	1.328,5	678,5	2.018,8	154,2	11,61
Moreno	1.379,1	886,7	2.791,7	204,2	14,81
Morón	1.499,0	915,4	2.684,4	202,3	13,50
Pilar	1.476,3	809,5	2.974,5	319,6	21,65
Presidente Perón	1.336,4	670,6	2.306,4	254,5	19,05
Quilmes	1.397,5	610,8	3.590,4	291,8	20,88
San Fernando	1.467,9	873,3	2.852,1	296,2	20,18
San Isidro	1.707,6	550,0	3.354,7	468,6	27,44
San Miguel	1.418,4	636,2	2.538,3	223,0	15,72
San Vicente	1.453,7	926,0	2.997,0	302,9	20,83
Tigre	1.485,3	891,3	3.339,1	337,4	22,71
Tres de Febrero	1.470,8	892,4	2.826,8	200,1	13,60
Vicente López	1.761,9	939,3	3.359,7	470,6	26,71
Greater Buenos Aires	1.421,2	746,9	2.626,4	230,2	15,98
Totals Metropolitan Area of	2.004,9	1.125,6	3.323,1	375,7	18,00

Source: CIPUV based on data from National Census (2010) and National Households Survey (INDEC)

Note: Due to date availability and the variables used in the matching method, these figures underestimate the effective income dispersion (see Methodological Annex).

Figure 5: Household Income Distribution in the Metropolitan Area of Buenos Aires



Source: CIPUV based on data from National Census (2010) and National Households Survey (INDEC)

Methodological note: Census data and Household Surveys collect the same socio-economic variables, but the latter also include income information. Household surveys cannot be spatially located, while census data that is spatially located does not gather income information. Therefore, a matching technique was used to associate sociodemographic indicators in the census database and in the household surveys in order to have income information that could be spatially located based on the geographical location of census tracts (for details, see Goytía and Dorna 2016).

Finally, in this description of the socioeconomic scenario, MABA is the location of important and numerous informal settlements. Goytía and Dorna (2016) show evidence of a positive association between more unequal municipalities and greater slum expansions.[9]

The urbanization of these settlements imposes a very important challenge to the authorities at every government level. Recognizing the problem, Argentina has recently passed a federal law to regularize the situation of 4416 informal settlements, including access to the property of the land and declaring the prohibition of evictions of squatter properties for four years.[10] Policy instruments to approach this problem have a varied nature (legal titling with the upgrading of public services; housing improvement; job creation; and community support structures). In general, LVCs may play a complementary (indirect) role in these solutions.[11] For instance, in Buenos Aires City a recent project showed the feasibility of this complementation between instruments. In the 1970s, the abandoned infrastructure of a highway had comprised successive demolitions and the buildings that remained in the neighborhood suffered a process of physical deterioration. In the 1980s and 1990s they became squatter buildings. To solve this situation, in 2009, the urban project *Barrio Parque Donado Holmberg* was implemented. It comprised the development of multifamily housing buildings for different socioeconomic levels, where much of the surplus value obtained was redistributed; allowing for the financing of infrastructure of mobility; public spaces; and urban equipment.

Even when the importance of informal settlements is undeniable in MABA, the analysis of this study focuses on the more general pattern of urban development in the regular urban area and the feasibility of applying LVCs taking into account the unequal income distribution across the territory (for a view of the location of informal settlements in MABA, see the Statistical Annex).

On one hand, the previous description displays the development of a "messy" urban growth in MABA. On the other hand, this situation has also translated into a reduction in the availability and access to domiciliary services, and into a disparate evolution of land prices. Both aspects are key issues in the study of the feasibility of LVCs to contribute to the solutions.

In fact, the lack of urban infrastructure has affected vast areas where income distribution is highly variable. Considering the last two Population and Housing Census (2001–2010) and recent data, the analysis developed by CIPUV shows that:

- Around 2015, the estimated coverage gap remained very high for an upper-middle income economy like Argentina. Around 16.5 percent of households lacks access to drinking water and 41.5 percent lacks access to the sanitation network. Recently, new

[9] These authors indicate that the causality of this relationship is unclear: "It might be the case that more unequal municipalities allow for institutional environments in which slums can grow faster. Or it might well be that places which have experienced more accelerated slum growth have become more unequal because of the arrival of new families that accentuates such disparities".

[10] Law 27473: http://servicios.infoleg.gob.ar/infolegInternet/anexos/315000-319999/315739/norma.htm

[11] In Latin America, Colombia carried on a policy of capturing private land value increments for public benefit in order to offer affordable serviced land to the urban poor, with public administrations thus replacing the traditional pirate developers (Maldonado Copello and Smolka 2003).

investments in the expansion of these services were planned.[12] The poor situation of the existing infrastructure determined that an intermediate step for updating the efficiency and capacity of the core services was needed prior to the expansion of the domiciliary connections.

- The level of coverage in the different municipalities is heterogeneous and presents important variations within them, highlighting the presence of extremely low levels of coverage in several jurisdictions in the periphery, around 10 percent in drinking water and 5 percent in sanitation (2010 data).

- The areas with the highest percentage of the population with a service deficit are located on the edge of the urban agglomeration of MABA and its consolidated radial corridors, a territorial edge to which the networks have not expanded yet (see figure 6).

- The areas of greatest urban growth, due to expansion and discontinuous development, are those with the lowest coverage of network services.

Figure 6: Local Infrastructure: Evolution of Access to Domiciliary Services (as a Percentage of Total Households)

Access to Service	Natural Gas		Drinking water		Sewerage services		Service of garbage collection	Availability of public transport
Year	2001	2010	2001	2010	2001	2010	2010	2010
City of Buenos Aires	97,10%	92,02%	98,20%	97,80%	99,50%	98,20%	97,72%	97,83%
Ring I	79,80%	81,10%	93,70%	95,10%	54,90%	55,00%	95,91%	95,29%
Ring II	48,00%	53,90%	77,50%	84,50%	29,50%	27,40%	93,71%	90,05%
Ring III	40,50%	45,30%	77,50%	83,10%	32,80%	29,50%	93,17%	79,59%
La Matanza	65,10%	60,60%	80,10%	84,80%	51,50%	45,50%	91,90%	90.41%

Source: CIPUV based on National Population and Housing Census, 2001 and 2010

This territorial distribution of public services is also related to the increasing incidence of housing qualitative deficit growing towards the periphery of MABA. While in the municipalities adjacent to the City of Buenos Aires the qualitative housing deficit affects around 15 percent of dwellings, at the edge of MABA this incidence grows up to 40–50 percent.

[12] New investments include large utilities for sanitation and the extension of the drinking water and sewerage net. https://www.aysa.com.ar/Que-Hacemos/

Regarding land prices, the Atlas from CIPUV of land prices for MABA[13] allows for a general picture of average price evolution, taking into account the variability across different locations and the access to public and domiciliary services.

Figure 7 exhibits the evolution of the median price by m^2 in dollars and the prices corresponding to the extremes of the price distribution (percentiles 25, 75, and 98). Prices show a broad range—from US$ 47 per m^2 to US$ 1,475 per m^2—for the average of prices over the collected period 2016–2018 (the Atlas collects the asking prices of the land plots).

Figure 7. Evolution of Median Land Prices in MABA

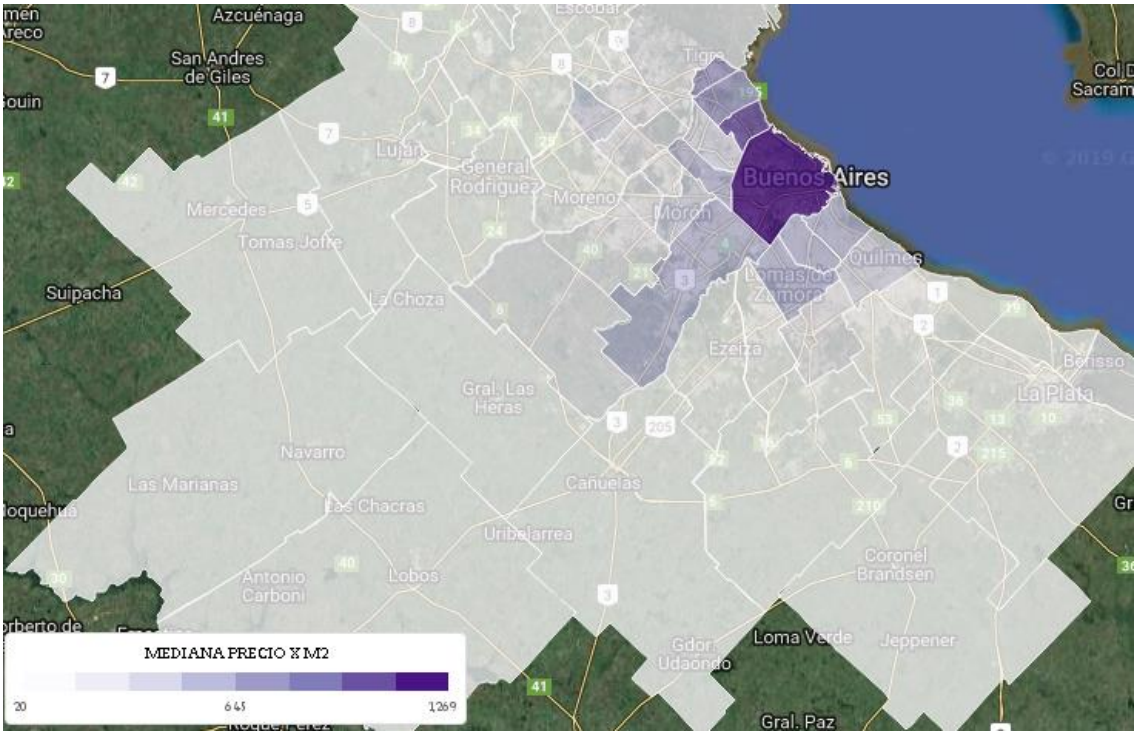
	Price per m2			
Date	Percentile 25	Median	Percentile 75	Percentile 98
sep-16	50	112	350	1948
oct-16	50	117	367	2050
dic-16	49	111	353	1997
ene-17	50	112	340	2030
feb-17	50	112	337	1958
mar-17	50	112	333	1997
may-17	46	93	219	1186
jun-17	44	85	213	1063
jul-17	49	110	342	2021
ago-17	49	111	352	2107
sep-17	49	112	353	2147
oct-17	41	90	255	1125
nov-17	41	93	268	1118
dic-17	50	110	336	1873
ene-18	52	119	369	2340
feb-18	53	119	361	2355
mar-18	53	116	345	2373

Source: CIPUV based on http://atlas-cipuv.utdt.edu/#/

[13] See: http://atlas-cipuv.utdt.edu/#/

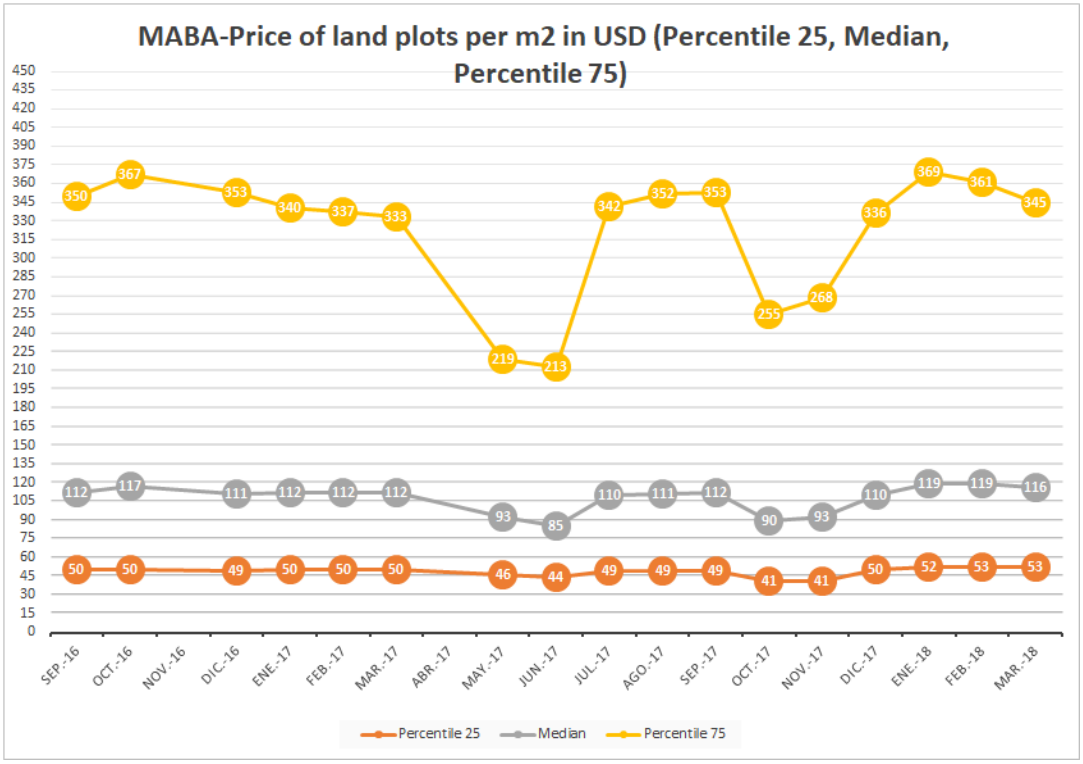
As expected, prices vary with their location according to density and availability of services. Prices are the highest in the central city of Buenos Aires and they keep high along the northern and southern areas over the banks of Río de la Plata (declining with distance to the central city). Southwest direction shows a more heterogeneous behavior of prices due to factors associated to the availability of public services, presence of informal settlements, leapfrog growth, security issues, etc. (see figure 8 and figure 9).

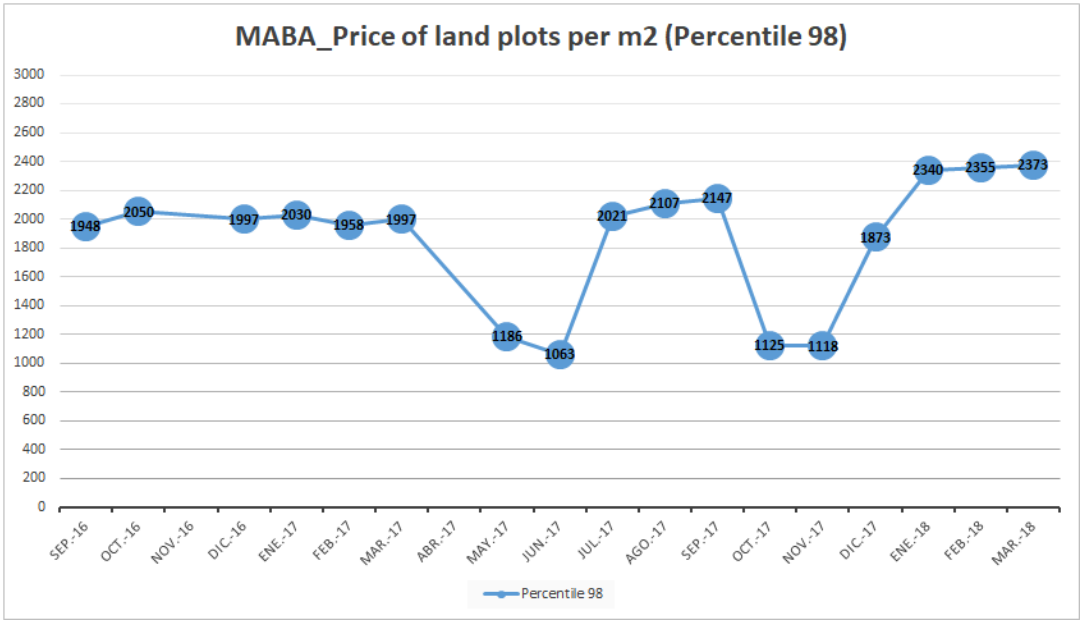
Figure 8. Land Prices in MABA, December 2017



Source: CIPUV based on: http//atlas-cipuv.utdt.edu/#/

Figure 9. Price of Land Plots per m^2 in the MABA Region





Source: CIPUV based on http://atlas-cipuv.utdt.edu/#/

The general trend is rather stagnant with some fluctuations.[14] Some municipalities show more activity in their land market, particularly those where average household incomes and land prices are higher.

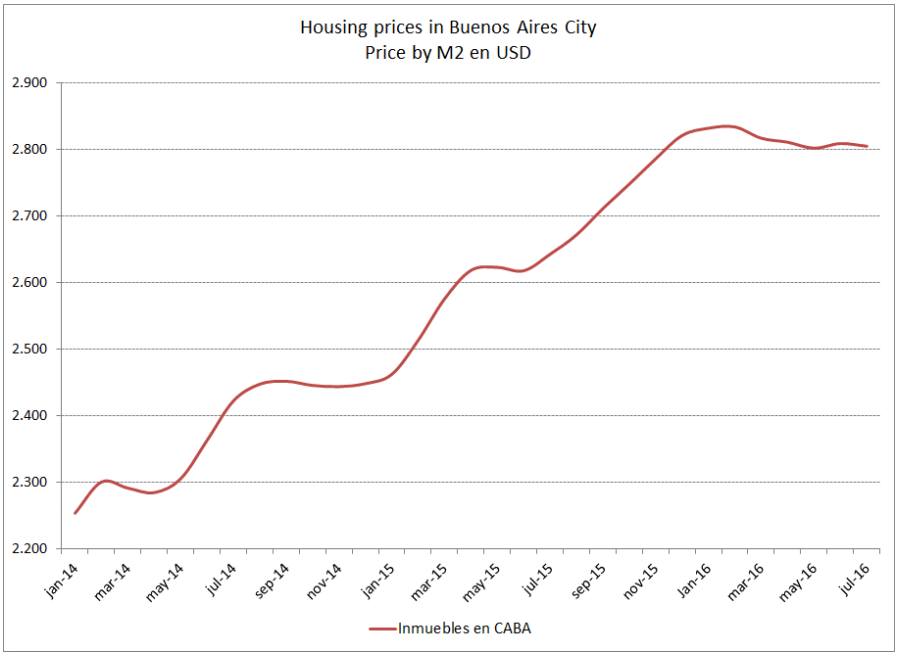
Considering the availability and access to domiciliary services, land plots located in the dense and formal urban area are almost completely covered. Instead, according to plot characteristics announced in the selling ads, access to natural gas; electricity; and drinking water is more often available while sewerage access is less abundant.

Finally, the performance of land prices presents an important contrast with housing prices in MABA. While land prices in the last three years are, generally, stagnant in trend, housing prices have been increasing. One aspect that may explain the difference is that while the housing market was small due to the lack of mortgage loans up to 2016, land supply was perceived as relatively abundant. Moreover, housing prices grew in selected areas of MABA (that is, City of Buenos Aires, northern area) where high income households could afford a change of preferences toward larger units or where they could use property as a safe destination for their savings (see figure 10).[15]

[14] Considering that housing prices have been increasing in USD over the 2016–2018 period in MABA, the stagnant price of land lots suggests a relatively abundant supply in less dense locations, that are poorly served by public services and with high transport costs for connection to the working areas.

[15] Cruces (2016) measures the flow of funds into the real estate sector for the city of Buenos Aires since 1992 and compares it to traditional savings instruments. For each dollar that went into the city's real estate from 1992 until 2000, about six dollars went into deposits for the national banking system. Instead, from 2003 until 2012, for each dollar that went into real estate, only 99 cents went to bank deposits.

Figure 10. Housing Prices in the Metropolitan Region of Buenos Aires



Source: CIPUV based on market sources

Attributions of Subnational Governments to Promote Local Development: The Case of the Metropolitan Area of Buenos Aires

Argentina is a federal country. The political and fiscal organization of the country is highly decentralized to the 23 Provinces (states) and the capital city, *Ciudad Autónoma de Buenos Aires*.[16] This city has full fiscal powers similar to the provincial ones. In the case of the Buenos Aires Province (PBA), where MABA (excluding Buenos Aires city) is located, the fiscal structure is rather centralized.[17] Municipal governments do not have attributions to charge taxes and, for instance, the Urban Property and Land Tax is established and collected at the provincial government level. figure 11 describes the revenue sources of municipal governments in PBA as compared to the total provincial distribution.

Figure 11. Composition (%) of Municipal Revenue by Source in the Buenos Aires Province (2016)

Type of Municipal Revenue	Buenos Aires Province	Total Provinces
Statutory transfers from National and Provincial Governments (*coparticipación*)	50,7	52,3
Contributions and fees	47,0	38,9
Other own current resources (taxes)	-	2,4
Other own capital resources (rents)	0,1	0,2
Federal Solidary Fund	2,2	6,2

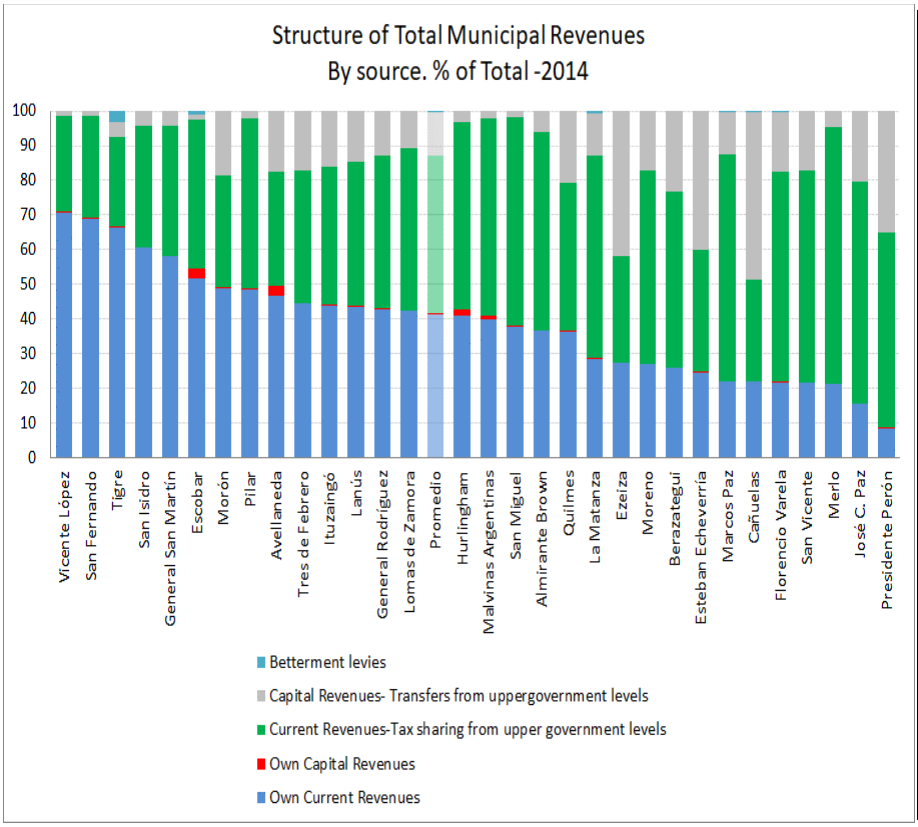
Source: CIPUV based on DNCFP-MECON

More than half of the municipal revenues in each province are provided by the upper levels of government (Federal and Provincial). Municipalities in PBA collect relatively more contributions and fees for their services than the rest of the municipalities in the country but, as already mentioned, they are not enabled to impose taxes. Composition of expenditures is variable according to each municipality, but a large share of revenues is allocated to health; education; and social services (current expenses). Capital expenses (infrastructure) are low and fluctuating. A brief analysis of capital expenses by municipality (excluding Buenos Aires City) shows that the average share of investment on total expenditure is planned to be around 6 percent in 2019. The collection of municipal information about the type of investments financed with own resources show that paving works are the most frequent and expensive, followed by the maintenance of health centers and schools' buildings; expansion of public lighting; and expansion and maintenance of traffic lights. Some municipalities, due to their geographical location, also allocate part of their own funds to maintain the infrastructure of the riverbanks. Finally, in a few cases, investment has been detected in sports or cultural complexes and in the construction of bicycle lanes.[18]

[16] Since the reform of the National Constitution in 1994, Buenos Aires City (CABA) counts as a province in practice.
[17] Autonomy of the municipal governments is warranted by the National Constitution, but each province has the right to organize the municipal regime by a provincial law, defining the degree of autonomy granted. In practice, each province adopts different modalities, and a few have not applied the autonomy principle yet (Mendoza; Santa Fe; La Pampa; and Buenos Aires).
[18] The analysis of the composition of municipal expenditures was elaborated using data reported by the municipal and federal governments. A list of websites consulted is included in the References section.

Figure 12 displays a detailed composition of municipal resources in MABA, identifying the share of betterment levies in the total. Notice that betterment levies are classified as capital revenues as opposed to current revenues originated in permanent and periodic contributions and fees. The detail of the betterment contributions by municipality showed in the right-hand side table in figure 12 indicates that 2/3 of municipalities have implemented some sort of betterment contribution but that only in two of them (Berazategui and Esteban Echeverría) the resulting revenues are of some significance.

Figure 12. Structure of Municipal Revenues by Source in MABA (2014)



Municipalities of Metropolitan Region of Buenos Aires (excluding Buenos Aires city)	Betterment levies (as a percentage of total revenues)
Almirante Brown	-
Avellaneda	0,11
Berazategui	3,34
Cañuelas	0,10
Escobar	-
Esteban Echeverría	1,17
Ezeiza	0,02
Florencio Varela	-
General Rodríguez	0,05
General San Martín	-
Hurlingham	-
Ituzaingó	0,01
José C. Paz	0,05
La Matanza	-
Lanús	0,29
Lomas de Zamora	-
Malvinas Argentinas	0,14
Marcos Paz	0,00
Merlo	0,00
Moreno	-
Morón	0,55
Pilar	0,01
Presidente Perón	-
Quilmes	0,05
San Fernando	0,01
San Isidro	0,39
San Miguel	0,45
San Vicente	0,19
Tigre	-
Tres de Febrero	0,00
Vicente López	-

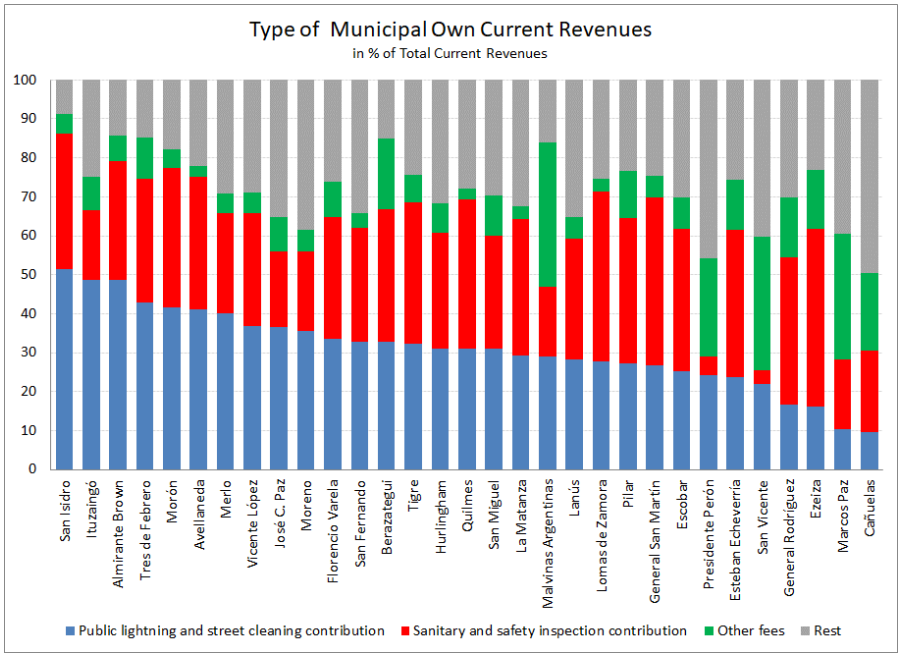
Source: CIPUV based in SIMco (https://www.simco.rafam.ec.gba.gov.ar/)

Finally, figure 13 shows the breakdown of own municipal current revenues by type of fiscal instrument. It can be observed that current revenues are based in two main fees: (a) the fee for public street cleaning and lighting service charged to households; and (b) the fee for the service of safety and sanitary inspection charged to businesses.

Planning and land use regulation and selected local investments in infrastructure are among the general attributions corresponding to municipal governments in PBA (and in Argentina, in general). Instead, local governments have little direct control over issues such as policies addressing income inequality; promotion of local economic activity; or the taxes charged to households.

In a previous study[19] we have described the unsatisfactory operation of the fiscal federalism in Argentina due to the excessive centralization of revenue collection at the national level; the extensive use of fiscal transfers to cover expenditures at the provincial and municipal levels; and, consequently, the need to reduce the imbalances between collections of own resources; and expenditures at the subnational government levels. That work presented an evaluation of the advantages and disadvantages of decentralizing the organization and collection of the Urban Property and Land Tax from the provincial governments to medium-sized cities of Argentina. The idea was that an increase of the property tax revenue could contribute to create larger fiscal space for local management of urban development and improve the local government accountability. In this current study, the implementation of LVCs are considered from that same point of view as potential efficient instruments operating to increase municipal fiscal revenues.

Figure 13. Types of Municipal Own Current Revenues (Percentage of Total Revenue)



Source: CIPUV based in SIMCo [Sistema de Información Municipal Consolidada] (https://www.simco.rafam.ec.gba.gov.ar/)

It is worth noticing that the Urban Property and Land Tax is a well-established instrument both legally and operationally. Instead, LVCs are used less often, the range of public actions admitted for their application is broader, and the legal backing of these instruments is varied and dispersed.

From the description in the first section, the case of betterment contributions is the most interesting for the MABA considering that these contributions are a more general instrument that can be applied on a regular (compulsory) basis to finance urban infrastructure, distributing the cost on a wider portion of the population as compared to exactions or one-off charges for development or building rights that are applied to individual projects. At the same time, the

[19] Goytía and Cristini (2017)

description of the subsection "Attributions of subnational governments to promote local developments" showed the urgent need to expand this kind of infrastructure in MABA. The information collected on current investments made with municipal own resources (see above in this subsection) showed that they were concentrated in roads and buildings' maintenance, suggesting that an expansion of their own resources through the implementation of LVCs could promote more ambitious municipal plans and translate into less dependency from upper levels of government for achieving local urban development.

In Argentina, betterment contributions (*Contribución por mejoras*) are generally defined as a levy based on the benefit principle in coincidence with the definition of the International Association of Assessing Officers (IAAO): "a compulsory charge imposed by a government on the owners of a selected group of properties to defray, in whole or in part, the cost of a specific improvement or services that is presumed to be of general benefit to the public and of special benefit to the owners of such properties" (1997).

In practice, the legal implementation varies between provinces, recognizing at least two limits. On one hand, the Supreme Court of Justice has determined that betterment contributions are temporary fees and levies applied to pay for the public expenses of a public action that benefits a recognizable and limited number of beneficiaries. It is based on the execution of a specific action/investment and the special payment must cease once the public investment is finished. On the other hand, as a general rule in Argentina, individual taxes cannot impose a burden higher than 33 percent of the value of the improved land.[20]

In Argentina, betterment contributions have been used since mid-1950s (see figure 14).

[20] This follows the general principle that prevents the State from imposing a tax burden higher than 33 percent of the value of the object (property; periodic rent; etc.) used as the tax base. Tax burdens beyond that percentage are considered confiscatory.

Figure 14. Betterment Levies in Argentina

In 1958, a Federal Law created the Federal Department for Roads (Law 505/58) and empowered the provinces for the creation of a "provincial fund for the evaluation, construction, reconstruction, improvement and maintenance of roads; with own resources". This fund would be comprised, among other sources, by the proceeds of a provincial tax on the properties benefited by the construction of national and provincial roads. Later, the capacity of provinces for implementing betterment levies was decentralized to municipalities according to the varied municipal organization of each province.

In practice, the most common application is to recover the total cost of public works charging the betterment levy on the beneficiaries of the urban investment according to the value of their real estate or land plot.

In Argentina this instrument has been implemented and used mainly in provinces such as Buenos Aires; Entre Ríos; Mendoza; and Santa Fe; among others.

The nature and scope of betterment levies have been discussed in Argentina. Some authors consider that the implementation of this instrument must be confined to cases where clear social or urban externalities exist, and the beneficiary of the urban action cannot exclude himself from the benefit. For them the extension of domiciliary services does not comply with this criterion since the beneficiary may decline to connect to the public service. Other authors point out that betterment levies are not a proper LVC mechanism in Argentina since it is mostly used to recover the cost of the investment and not to capture the land valorization. In this sense, Argentine practice in betterment levies is similar to the one registered in the rest of Latin America (Smolka 2013).

Source: Ministerio del Interior (2018); Del Rey (1973)

Although its legitimacy is not questioned, controversies continue over how the charge is assessed and distributed among properties.

In the case of the Buenos Aires Province, the legal institution that regulates the criteria for financing municipal public investments was enacted in 1973 (*Ordenanza general 165*). Within these criteria, the "direct execution of urban infrastructure with municipal funds" was explicitly included enabling municipalities to impose the corresponding betterment contributions (Article 11). It is important to mention that the burden imposed by the contribution cannot exceed a certain amount (measured as a percentage of the real value of the property after the betterment) so as not to result in a confiscatory contribution. Any excess of the cost over this amount must be paid by the municipality.

More recently, in 2012, the Provincial Law of "Fair Access to the Habitat" (No. 14,449) included new regulations on municipal participation in real estate valorizations due to public urban action. Those actions are listed in the law and basically refer to (1) the transformation of an area classified as rural into an urban area; (2) the establishment or modification of the regime of land uses or territorial zoning; (3) the authorization to increase building use of the plots.

Finally, despite their legal capacity to use betterment contributions as a legitimate source of revenues, only a small group of municipalities have implemented them as shown in figure 12.

The Potential Role of LVC in the Metropolitan Area of Buenos Aires

Previous sections have described the nature and practical implementation issues with LVC instruments in the international and regional experience. The focus of the analysis was on the use of these instruments in the context of asymmetrical income distribution. The scenario of the Metropolitan Region of Buenos Aires was presented as a case where LVC instruments could operate to finance a significant lack of urban infrastructure stemming from a long period of rapid and disorganized urban growth.

As stated before, value capture builds on the principle that the benefits of urban infrastructure investment are capitalized into land values and therefore the government charges properties according to the benefits received from public actions (unearned by the landowners). These actions may include public investment in infrastructure and services, improved access to them or any change in land use norms and regulations capitalizing value of land. In the MABA case, the main interest is centered on improving the financing of urban infrastructure investment. Betterment contributions were identified in the section "The Case of the Metropolitan Area of Buenos Aires" as an adequate instrument to that aim considering the nature of the investment (lacking urban infrastructure affects large areas of MABA and the investment will benefit an identifiable group of households in each neighborhood).

The previous description of MABA's socio-economic situation was characterized by:

- an asymmetric income distribution within small areas in each municipality, with low income households adjacent to medium and high-income households;
- diminishing income towards the periphery of MABA, excluding the municipalities along the banks of Río de La Plata, particularly, those towards the northern direction;
- diminishing prices of land accompanying diminishing income pattern over the territory;
- urban growth by extension or leapfrog pattern dominating over the densification growth of the area;
- segregation of high-income population in gated neighborhoods and presence of informal settlements spread in the whole area; and
- fluctuating land prices around a stagnant trend that contrasts with the upward trend in housing prices in high density zones and segregated neighborhoods (Buenos Aires City; the northern and part of the southern municipalities along the banks of the river).

The evolution of the socio-economic situation in MABA has been immersed in the highly and recurrent unstable macroeconomic scenario of Argentina where episodes of very high inflation, exchange rate volatility and extreme activity level fluctuations arise. Real estate has played a role as a safe asset in the portfolio of households of medium and high income alike. Finally, betterment contribution burden would add to a situation of increasing tax burden in the country. Considering the ratio of federal and provincial tax revenues to GDP, the tax burden increased

from an average of 20 percent in 1992–2002 to an average of 30 percent in 2009–2019. The latter figure is only 4 percentage points lower than the OECD average and 7 percentage points higher than the Latin-American average (see Selected Macro-Indicators in the Statistical Annex).

Taking into account the characteristics of MABA regarding urban growth; household income distribution; land and housing market operation; and fiscal institutions, this section will illustrate alternative outcomes for a typical municipal government of MABA that implements a betterment contribution (BC) to finance an infrastructure investment (provision of natural gas; drinking water; sewerage; roads; public lighting; flood defense system; etc.) To assess these outcomes, various combinations of BC rates and land price impacts from the infrastructure improvements are considered.

In the considered urban scenario, households living in the area benefitted by the investment belong to different income and wealth ranges (low versus upper-middle and high incomes). All households own a similar plot of land in terms of size[21] but their housing buildings differ according to the socioeconomic situation of each household. These stylized features represent the main description of MABA characteristics presented above (for a complete description of the characteristics and results of the simulation model used for the estimations, see the Methodological Annex).

In the initial situation (scenario 0 of figure 15) the municipality charges a BC that is accurately calculated to absorb the whole land valorization stemming from the public investment in urban infrastructure. Accordingly, the wealth distribution between households and the price of land remain without changes. In the short run, households have to pay the new temporary levy and consequently, their welfare (based on their current consumption) will be slightly reduced during the period of this payment.

This initial scenario ought to be evaluated carefully. On one hand, the balance between the revenue collected by the BC and the impact of the improvement on land prices is difficult to achieve for the municipality due to the complexity of technical calculations involved and the need to estimate land market responses to the new investments (households living outside the municipality may increase their demand for land). On the other hand, BCs are applied on land valorization and due to the fact that households of very different income and wealth levels have a similar land endowment, the burden of the levy could be excessive for poor households while easily affordable for richer ones.

Using scenario 0 as a benchmark, alternative combinations between different BC rates and impacts of the improvements were tested. These alternative combinations will have diverse consequences on land prices (after taxes); wealth distribution; and household welfare. Figure 15 presents the considered alternatives.

[21] According to the law regulating land use in Buenos Aires Province (Decreto-Ley 8912/77), the minimum size for an urban plot is 300 m^2.

Figure 15. MABA Simulation Model: Betterment Contributions and Municipal Investment Plans

Incidence on Land Prices; Welfare; and Wealth of Local Households

Scenario	Municipal government actions	Changes in		
		Land Price (after taxes)	Wealth distribution	Average welfare
		Increase: + Decrease: -	Improvement for poor households: + Deterioration for poor households:-	Temporary Increase: + Temporary Decrease: -
2	Investment financed by upper government level	++	++	+
1	BC absorbs only part of land valorization	+	+	+ or -
0	BC absorbs land valorization completely	No change	No change	Temporary reduction
3	BC absorbs rent in excess of land valorization	-	-	- or +
4	BC is applied as an urban land tax and no investments are performed	--	--	-

Source: CIPUV based on the Simulation Model of the Methodological Annex

Departing from the benchmark (scenario 0), cases 1 and 2 explore situations where the burden of the levy is diminishing while cases 3 and 4 depict scenarios where the burden is increasing relative to the impact of the improvement on land prices. Case 2 represents an extreme situation where the whole investment cost is financed by a transfer from an upper government level. Instead, case 4 is the opposite extreme illustration where the BC operates as a land tax (no investment is strictly associated to the levy). The table shows the impact of each policy combination on land prices; wealth distribution; and average household welfare.

Lessons from the Simulation Exercise:

- Comparing scenario 2 with the benchmark (scenario 0), from the point of view of the taxpayers, if upper government levels pay for the investment, they receive a "windfall" that increases their wealth and welfare and also makes more progressive the wealth distribution. Municipal governments are often credited for this situation (they are

considered as efficient political negotiators by their constituencies). Unfortunately, general principles of public finance show the risks for local governments of depending from upper government levels and, in contrast, the benefits of a decentralized fiscal organization. As shown in the review of the literature, both the property tax and instruments of LVC have shown their efficiency for tax collection under a decentralized fiscal organization.

- On the other extreme, comparing scenario 4 with the benchmark, from the point of view of the municipal government, the imposition of a property tax to finance local public expenditures has well-known advantages such as its progressivity relative to taxes on consumption; the difficulty of tax avoidance; and the acceptance of the taxpayers.[22] As with any tax, it creates a burden on the residents, and, as expected of any direct one, it reduces land prices; wealth; and short-term welfare. In return, a more efficiently funded public expenditure favors economic growth and long-term welfare. In this simulation exercise, the revenues from the property tax are applied to current expenses (such as repayment of past debts; bureaucratic activities; etc.) that do not provide immediate services to the population. Additionally, due to the composition of the portfolio of each household (low and upper middle-income families have the same land endowment but different capital and labor endowments) wealth distribution turns more regressive and owners are compelled to adjust their general consumption or sell part of their properties to pay for the tax.

- Accepted the convenience of using LVC instruments at the local government level (as the international and regional experiences show), the socioeconomic and urban scenario prevailing in MABA have to be considered in order to avoid undesired effects in the policy implementation. In the MABA context of significant asymmetry of income distribution; wealth endowment; and volatility of relative prices; notwithstanding the effect of the improvement on the quality or the quantity of land plots, the balance between the rate of the betterment contribution, and the impact of the improvement are key to the success of the urban policy. Under certain combinations of levies and benefits, the contribution burden may increase significantly, welfare may decrease, and wealth distribution may turn more regressive. The perception of these changes may create a resistance in households to comply with the contribution, especially of those with lower incomes.

- In the case of the implementation of betterment contributions, the same levy rate can result in a higher burden than in the case of a property tax. But due to the fact that they are associated to an urban investment plan that improves land quality or quantity, the perception of the residents, through increases of their welfare, operates in favor of the general acceptance.

- Finally, the results also suggest that the kind of investment and impact on land may be important in terms of welfare and income distribution results. Infrastructure investments that allow for the full use of land (reduction of flooding risks; pavement; public lighting)

[22] For a synthesis of the advantages of the land tax as a local government revenue source see Bahl, Martinez-Vazquez and Youngman (2008).

are perceived as an immediate welfare gain. In the case of public investments in domiciliary services households are benefited by a wealth improvement. At the same time these investments have the potential to improve the health status of household´s members, the educational performance of children and other externalities often cited in the scholar literature. But financing through betterment contributions could result in an excessive cost and have the potential to affect the standard of living of households. Thus, the results underline the need for an especially careful appraisal of the betterment contribution implementation in social scenarios characterized by wealth and income distribution asymmetries.

Synthesis and Policy Recommendations for the Case of the Metropolitan Area of Buenos Aires

The review of the literature on the experience with LVC instruments, particularly in the Latin-American countries and the results of the simulation model for MABA indicate that:

- betterment contributions are well-adapted instruments to financing infrastructure projects that have the potential to benefit a wide range of households in a specific area; and

- moreover, they have the advantage of being already in use at several municipalities of this metropolitan region.

However, the implementation of betterment contributions may be subject to several risks due to the unequal distribution of income; the importance of land in wealth composition prevailing in MABA; and the volatility of relative prices recurrent in Argentina.[23] One aspect to be considered is to develop an adequate balance between the rate of the betterment contribution and the size of the improvement impact (measured through land valorization). The results of the simulation exercises show that this balance is a key component to gain the acceptance and success of the urban plan.

The results also suggest that the kind of investment (affecting the quality and/or the quantity of land) may be important in terms of welfare and income distribution results.

Considering these conditions, the following policy recommendations may be of interest:

a. the distribution of the levy burden should take into consideration the current income instead of (only) the value of the plot as a base to allocate the cost to each household. The Medellín method in Colombia may be a useful example;

b. the burden of the betterment contribution may be conveniently distributed over time to smooth the impact on current income of households. The gap between payment for the project and contribution collection may be covered by the financial market (through

[23] Booth (2011) indicates that "arriving at the market value of land would appear to be an inherently uncertain process" This is particularly so in the presence of price volatility.

municipal public bonds) or by upper government levels (through fiscal transfers). In the case of issuance of public debt, the municipalities of MABA are limited by a provincial law[24] and their total debt has a limit equivalent to 10 percent of their current revenues; and

c. considering the need for extensive investment in urban services in MABA, betterment levies can be organized to anticipate the collection, targeting a larger group of actual and future beneficiaries of public actions. In this case, betterment contribution revenue should be earmarked to the execution of the urban plan. A fund for urban development could be a transparent instrument to that end.[25]

A final concern is the fact that policy makers may have little flexibility to adjust the levy in order to accommodate market fluctuations due to legal restrictions and macroeconomic instability, thus the technical capacity of the municipal teams involved in the implementation of LVC instruments should be properly addressed.

[24] Provincial Law of Municipal Fiscal Responsibility No 13295 of 2017.

[25] In Argentina, this kind of fund can be implemented as a traditional fiscal tool (extrabudgetary funds) or as a financial trust under Law 24.441 and 26.994. In the case of municipalities of Buenos Aires Province, the law ruling the fiscal attributions of local governments is open to the implementation of new instruments such as fees and levies, but taxes are strictly a provincial attribution (Decreto-Ley 6769/58)

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www.mda.gob.ar	http://www.malvinasargentinas.gov.ar/
www.berazategui.gov.ar/	http://www.marcospaz.gov.ar/
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http://www.canuelas.gov.ar/	http://www.moreno.gob.ar/
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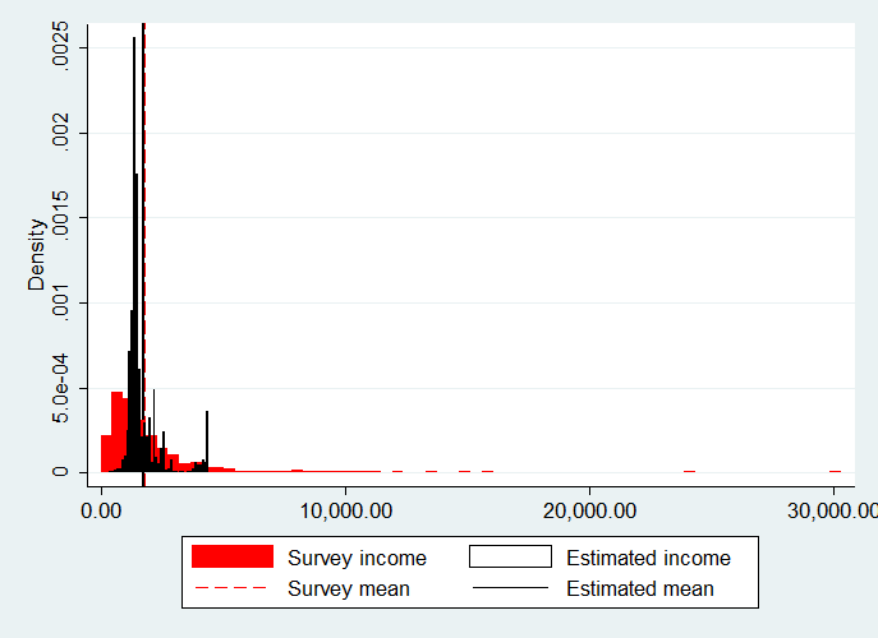
Methodological Annex

Territorial Income Distribution

Goytía and Dorna (2016) are the source of figure 5. They take advantage of the overlapping socio-economic data between the 2010 Census and the Household Survey to produce a georeferenced match allocating income available in the Household Survey to each census tract.

According to the authors "an issue that needs to be stated involves the differences in deviation between distributions. This issue is attributable to the difference in measuring units between databases: while the Household Survey has families as its units, the Census presents census tracts as its most disaggregated level. Therefore, when a match for the census tract is found, a household (or group of households) that can mimic the average income of that tract is identified. As a result, extreme values for both income and socio-economic proxy indicators are rarely obtained, and the outcome is a less dispersed distribution than it is actually observed in the household survey". See figure A-1 below.

Figure A-1



Simulation Model: Incidence of Betterment Contributions and Land Improvements in a Typical Municipality of the Metropolitan Area of Buenos Aires

Considering the socioeconomic and urban characteristics of MABA, a simulation model is developed for a typical MABA municipality that implements betterment contributions to finance infrastructure investment plans, affecting the price of land that is owned by low- and high-income households. The results are split into two exercises:

- Exercise I represents the investment by a small municipal government (open economy) where improvements are capitalized on land prices (the usual case of the literature); and

- Exercise II represents the same small municipal government (open economy) but the improvements due to the public investment operate *as if* enlarging the plots. This enlargement can be effective in the case, for instance, of infrastructure to prevent recurrent flooding; or in the case of providing the benefitted plots with services that allow full access to the use of land (public lighting; roads).

In each exercise the following policy and impact alternatives are presented:

Figure A-2

Cases	Betterment Contribution	Improvement
a	10%	None
b	None	50%
c	10%	50%
d	20%	30%
e	10%	30%

The socioeconomic indicators estimated in each case are the following (see figure A-3):

- land price (after BC): percent change in land price after levies;

- wealth high incomes: wealth of households is defined as the valorization of their endowments (labor; capital; and land). High income households own more capital but the same land than low income ones;

- wealth low incomes: low income households own less capital and more labor but the same land than high income ones;

- wealth distribution: ratio of the value of wealth between high- and low-income households;

- welfare high incomes: welfare indicator for high-income households that depends on consumption;

- welfare low incomes: welfare indicator for low-income households that depends on consumption;

- government revenues: levy collections;

- land sale/consumption adjustment high incomes: When the policy implies a welfare loss, high incomes must reduce their consumption or sell part of the land to pay for the levy. If

the policy implies a welfare gain, high incomes review their pattern of consumption, eventually decreasing their stock of land through sale (figures in blue in figure A-3).

- land sale/consumption adjustment Low incomes: When the policy implies a welfare loss, low incomes must reduce their consumption or sell part of the land to pay for the levy. If the policy implies a welfare gain, low incomes review their pattern of consumption, eventually decreasing their stock of land through sale (figures in blue in figure A-3); and

- annual levy burden/municipal GDP (BC distributed over five years): contribution burden distributed over five years for the repayment of the public investment/value added by local producers.

Note: In the model, high income households represent both high and middle-income families of MABA.

Figure A-3. MABA Simulation Model: Betterment Contributions and Municipal Investment Plans. Incidence on Land Prices, Welfare and Wealth of Local Households. Evolution of Levy Burden and Land Sales.

Exercises by Model										
Economic/social indicator-Changes in % related to baseline situation	Exercise I : Small municipal open economy. Improvements capitalized on land prices					Exercise II: Small municipal open economy. Improvements operate *as if* enlarging the plots				
	a. BC 10%	b.Improvement 50%	c.BC 10%-Improv. 50%	d. BC 20%-Improv. 30%	e. BC 10%-Improv 30%	a. BC 10%	b.Improvement 50%	c.BC 10%-Improv. 50%	d.BC 20%-Improv.30%	e. BC 10%-Improv. 30%
Land price (after BC)	-20,4%	74,5%	32,7%	-13,9%	3,3%	-20,4%	-16,1%	-32,0%	-28,2%	-38,8%
Wealth Upper-middle and High incomes	-16,4%	59,8%	26,3%	-11,2%	2,6%	-16,4%	20,6%	1,6%	-5,4%	-16,4%
Wealth Low incomes	-18,7%	68,2%	30,0%	-12,8%	3,0%	-18,7%	23,5%	1,8%	-6,2%	-18,7%
Wealth distribution	1,17	1,08	1,11	1,16	1,14	1,17	1,11	1,14	1,15	1,17
Welfare High incomes	-7,7%	5,8%	-4,6%	-13,3%	-6,6%	-7,7%	37,5%	26,0%	12,7%	5,1%
Welfare Low incomes	-9,0%	5,1%	-5,6%	-15,1%	-7,5%	-9,0%	43,4%	30,2%	14,6%	5,5%
Government revenues	103	0	172	223	134	103	0	132	121	207
Land sale High incomes/consumption adjustment	-4,5%	-8,4%	-13,5%	-14,0%	-9,7%	-4,5%	-4,1%	-9,5%	-7,8%	-12,5%
Land sale Low incomes/consumption adjustment	-7,1%	-3,6%	-11,0%	-15,5%	-9,3%	-7,1%	-1,7%	-9,3%	-8,5%	-14,8%
Annual Tax burden /Municipal GDP(BC distributed over 5 years)	9,4%	0,0%	15,6%	20,3%	12,2%	9,4%	0,0%	12,0%	11,0%	18,8%

Source: CIPUV

Government revenues are presented in absolute value; wealth distribution is a ratio, where 1.14 represents the distribution in the baseline (before the policy is implemented): high-income households have a larger wealth than low-income ones. An indicator equal to 1 means equality of distribution, and figures higher than 1.14 indicate that the wealth distribution changes in favor of high-income families. Welfare changes are measured in "equivalent variation", a measure that approximates households' willingness to pay for the improvement. The rest of the variables are measured as a percentage change comparing the situation after the intervention with the baseline. The baseline income distribution is asymmetric and the ratio of high and upper-middle income to low income is approximately threefold, reproducing the situation of figure 13 of the text. Instead, the difference in wealth is only 14 percent favorable to high-income households since both types of families have the same endowment of land.

Results

Case (a) shows coincident results in Exercise I and II. In this case the municipal government imposes a 10 percent ad-valorem tax on land. It operates like the urban property tax. In this case, it reduces the price of land more than proportionately, because consumers must pay the tax by subtracting it from their current income. To show the incidence of the tax payment on consumption an equivalent in land value was estimated. Thus, households could reduce their land tenure to maintain their consumption level, selling 4–5 percent in the case of high-income households and 7–10 percent in the case of low-income households. The welfare and the wealth value diminish for everyone but low-income families result relatively more affected. Wealth distribution has a greater bias against low-income households.

Exercise I, case (b), exhibits a situation where the municipal government can improve the urban infrastructure using transfers from an upper level of government. This fact results in a "windfall" for the residents, benefitting the low-income households relatively more. Consequently, wealth distribution is modified in favor of low-income groups as compared to the baseline situation. Land price increases more than proportionately due to the increased external demand to have access to the improved land. Households can improve their consumption due to their increase in wealth, which is showed here by the equivalent land percentage that they could sell to adjust their stock to the new situation.

A somewhat striking result of the simulations may be that, both in the case of a "windfall" and in the case of a "property tax", households decide to sell a portion of their land. Beyond this coincidence, the underlying reasons that explain this behavior are diverse.

When land price goes up households are richer, and they recalculate their optimal consumption baskets. In absence of transaction costs, they might sell land to buy consumption goods given that the relative price of consumption goods has fallen with respect to the price of land. This is apparent in the behavior of the rich, who sell more than 8 percent of their land endowment in case (b). They do not need to sell but they prefer to do so, to improve their living standards.

Instead, when a tax on land endowments is imposed, the households' only way to pay it is to reduce their expenses in consumption goods, unless they sell part of their real

estate. And it can be seen that the households in the model prefer to reduce their stock of land rather than their living standard. This is remarkably more important for the poor who cannot afford their usual consumption baskets and pay taxes at the same time, so they sell more than 7 percent of the stock in case (a). Again, this is the expected behavior on average (some households may decide to sell and some may prefer to keep the land) in absence of transaction costs, and assuming that there are not personal or family reasons to keep land in their hands.

Exercise I, cases (c) to (e) refer to the situation in which the municipality charges a betterment contribution in order to finance at least part of the investment that will improve land quality. The first aspect to notice is that no combination of betterment contribution and improvement of land quality result in an increase of land prices after levies are imposed. When the levy rate increases and the relative impact of the improvement decreases, the land price change goes from positive to negative. This indicates that the right combination of levies and impacts is hard to achieve. For instance, in case (d), a reduction of the improvement impact along with an increase in the levy rate results in a reduction of land price; larger reductions of welfare; and more land sales/consumption adjustments. Under this combination of variables, it is difficult for both high and low-income households to keep their current living standard. Thus, they revise their wealth portfolio and sell land or reduce their consumption. Foreign agents are ready to buy improved land at cheaper prices. Case (e) presents a more balanced result.

Exercise II, case (b), presents the simulation where households receive a windfall; new infrastructure is financed through transfers from upper-level governments. However, as compared with the same case in exercise I, the land price falls due to the increase in effective land supply (enlargement of the land stock) enabled by the improvement (at a given price, land supply is larger than before). The balance between the gains from the enlarging of land stock and the fall of land price is favorable and wealth and welfare increase for low, upper-middle, and high-income households. Again, wealth distribution is modified in favor of low-income households in comparison to the baseline situation, but the correction is lower than in the case of quality-improving investments of Exercise I due to the reduction in land price.

Exercise II, cases (c) to (e) show a further reduction in land price compared to case (b) due to the incidence of the levy. One interesting feature is that wealth increases less and decreases more than in the cases of Exercise I due to the incidence of land price reduction. The gain for the full use of land plots does not compensate for the reduction in price. Wealth distribution does not improve or is not more regressive than in the previous exercise. Instead, while the welfare indicator was negative (reduction in welfare) for all households in the first exercise, now the welfare increases in all cases and across households due to the fact that the burden of the levy is lower than in the case of quality improvement, potentially improving the current consumption.

Structure and Computation of the Simulation Model.

The results of the simulations are based on a general equilibrium model of a small region or urban area (municipality) that trades with the rest of the economy.
It is assumed that there are two production sectors in the region with traditional technologies: they exhibit constant returns to scale. The basic factors of production are

local capital; and local labor. Since the municipality is small with respect to the rest of the economy, both industries produce goods similar to those produced in the rest of the economy. Therefore, they are commodities and their prices cannot be influenced by local producers.

Local capital and labor are owned by local households who reside in the region. To simplify, it is assumed that there are two representative households: high and low-income. The latter has only a fraction of the total labor and capital owned by the high and upper-middle incomes (approximately 30 percent).

But both the high and upper-middle income, as well as the low-income households, have an endowment of land that constitutes a significant part of their wealth. For these simulations, it is assumed that the amount of land owned by both types of households is the same. This is relevant for the results because an increase of levies will impact the poor more heavily, who have a lower current income (from capital and labor).

Households buy consumption goods from the two local industries and from the rest of the world at given prices. That consumption and the use of local land are the main determinants of their welfare.

In fact, welfare is only driven by private goods, since the government does not provide public goods. The only role for the government is to collect the land levy and use it to improve the quality or quantity of land. Increases in the quality of land in the first case attract buyers of land from the rest of the economy. Instead, increases in the quantity of land (for example, by reducing flooding risk) reduce the price of local land that is acquired by agents from the rest of the economy.

The levy on land is an ad valorem levy applied on all land owned by local and “foreign” households and it is computed at market value.

There is a main representative household living at the expense of the economy, who buys consumption goods and potentially also buys land located in the municipality. This household owns one basic means of production: value added from the rest of the world, which is also used to produce consumption goods.

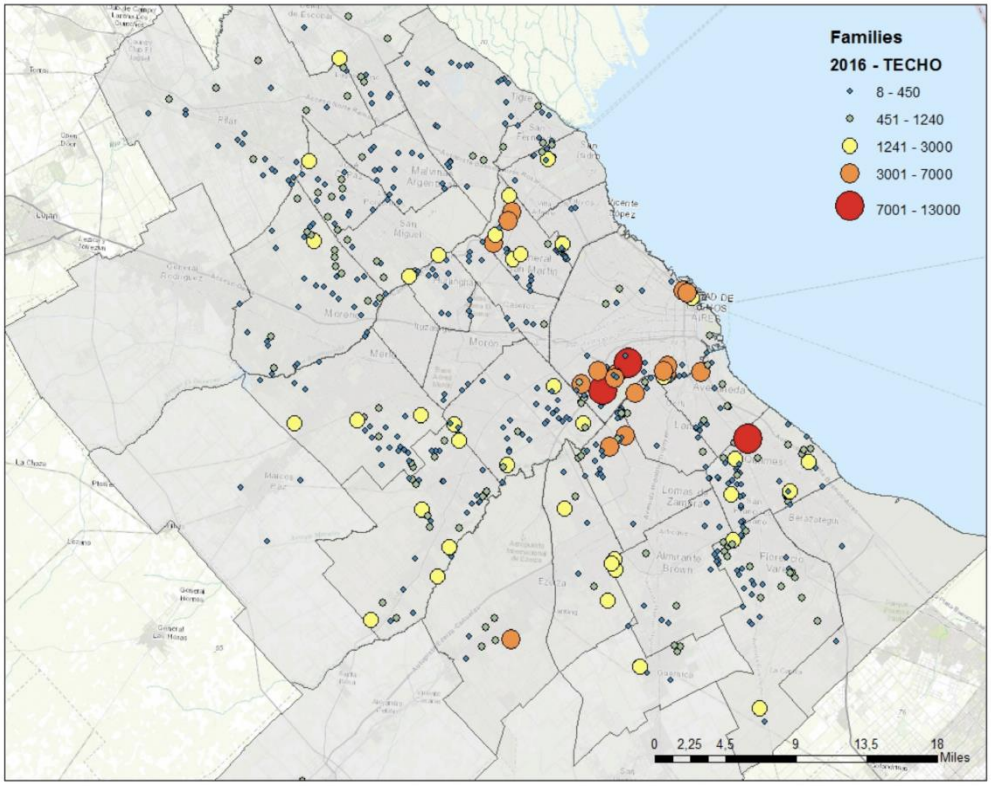
From the simulations shown here, it is assumed that all households (local and in the rest of the economy) have utility functions of the Cobb-Douglas type.

The model is written in GAMS/MPSGE (General Algebraic Modeling System /Mathematical Programming System for General Equilibrium Analysis) and solved first to check the calibration and then in counterfactual exercises for the simulations. The first simulation checks the consistency of budget and equilibrium equations, and then the following simulations compute the results for different parameter values.

Statistical Annex

Figure A-1

Households in Informal Neighborhoods (2016)



Source: Own estimates based on TECHO 2016.

Figure A-2

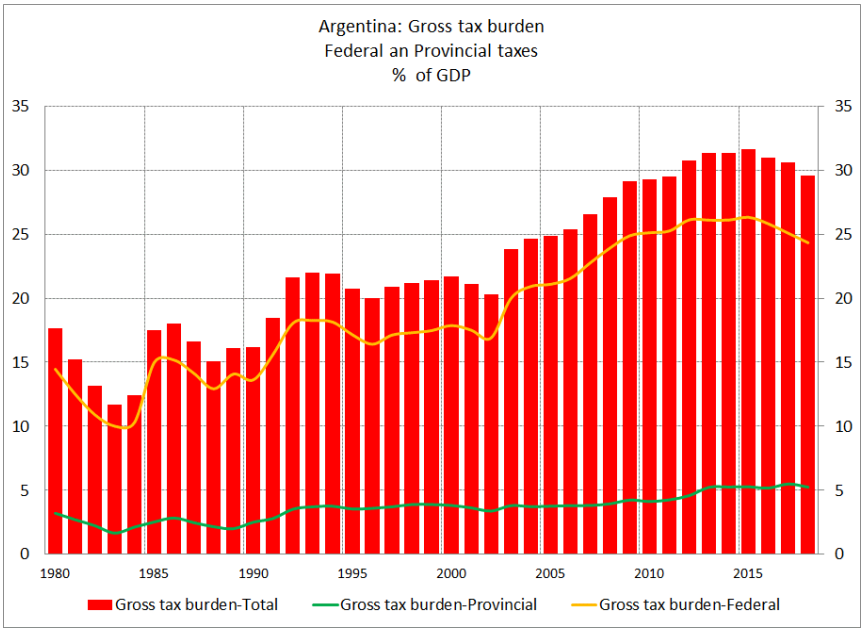
Fiscal Revenues and Expenditures by Government Level- 2016

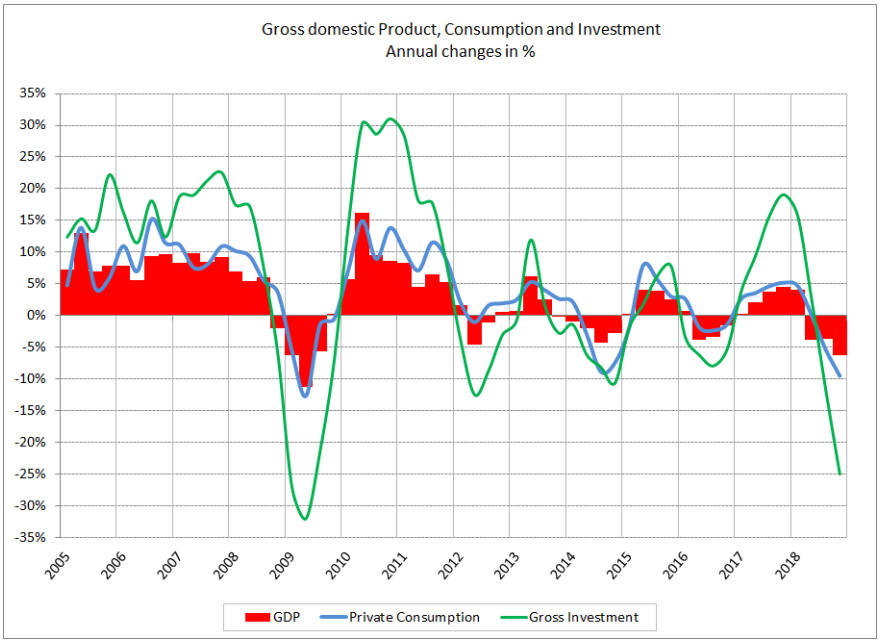
Level of Government	Revenues (% of the total)	Expenditure (% of the total)
Central Gov.	68,5	57,2
Provinces	15,0	34,6
Municipalities	3,6	8,3

Source: own based on DNCFP-MECON

Selected Macroeconomic Indicators

Figure A-3





Source: CIPUV based on Ministry of Finance

Glossary

Betterment contribution: charge or fee imposed on owners of selected properties to defray the cost of a public improvement or service from which they specifically benefit (known as a *special assessment* in the United States).

Building rights charges: applied to recover the land value increment resulting from development rights over and above an established baseline. Their feasibility depends on the legal separation of building rights from land ownership rights.

Exactions: cash or in-kind contributions made by landowners to obtain special approvals or permission to develop or build on their land. These contributions may be stipulated through subdivision or development agreements based on a particular norm or expectation, or they may be negotiated by the government on an individual basis.

Impact fee: charge imposed by a local government on a new or proposed development project to pay for all or a portion of the costs of providing public services to the new development.

Land readjustments: in-kind (usually land) contributions by all landowners in the area of a project to an entity that in turn uses (sells) these contributions to self-finance investment in urban infrastructure and services.

Linkage operation: is a particular type of charge that offers permission to build at a higher density in exchange for the developer contributing toward, or actually providing, affordable housing units or other community benefits.

Property tax: direct tax on real estate including land value. Property taxes are not usually associated with any particular public intervention.

Source: Own elaboration, based on Alterman (2012); Booth (2012); Borrero Ochoa (2013); Smolka (2013); Smolka and Amborski (2000)