Assessing the monetary relevance of land value capture: the case for charges for additional building rights in São Paulo, Brazil

Martim Oscar Smolka\textsuperscript{a}, Camila Maleronka\textsuperscript{b}

\textsuperscript{a}Lincoln Institute of Land Policy, 113 Brattle St., Cambridge, MA 02138-3400, USA

\textsuperscript{b}P3urb, Rua Ernest Friedrich Jost, 40, São Paulo, 05429-070, Brazil

Abstract

Land value capture (LVC) provides a mechanism for communities to recover financial windfalls accruing to landowners from public investments in infrastructure and services or from beneficial changes in land use norms and regulations. This progressive public financing option is gaining noteworthy traction in nations worldwide.

This article argues that a major new value capture tool—charges for building rights—can be a significant source of public revenue. This type of fee has the advantage not only of generating much-needed financing for urban infrastructure and services, but also of addressing a fundamental social equity issue in land policy. After briefly explaining the argument for value capture, the article describes the groundbreaking implementation of building rights charges in São Paulo, Brazil, with specific examples of how those charges are calculated. Also described is the successful use of Certificates of Additional Building Potential (CEPACs) an innovative tool to collect land value increments resulting from large-scale urban redevelopment projects. The article then recommends several changes that would help to maximize the revenues from building rights charges and promote more equitable urban development.

Keywords: Land value capture; public financing; urban planning; São Paulo.

1. Introduction: why land value capture?

Conventional fiscal policies largely neglect the fact that the costs of providing adequate transportation, water and sewage systems, and open space services to meet more intensive land use are borne by all taxpayers, but their
benefits accrue only to certain property owners. Charges on the land value increments that these landowners receive from public actions—such as conversion of land from rural to urban use or changes to zoning regulations that allow higher-density development—fall under the legal principle that no one is entitled to unjustly earned income.

And under the equity principle that the public sector cannot favor one citizen over another, public investments and regulations affecting land values must be uniform across a city. If they are not, the government must take measures to redistribute the benefits and burdens of those investments and regulations. A long history of international experience demonstrates that it is both feasible and practical to defray at least part of the cost of urbanization by capturing the land value increment created in the process (Hagman and Misczynski, 1978; Smolka and Furtado, 2001; Peterson, 2009; Muñoz Gielen, 2010; Alterman, 2012; Ingram and Hong, 2012; Walters, 2012; Smolka, 2013).

2. Charges for building rights in São Paulo

The instrument that regulates charges for additional building rights in Brazil (Outorga Onerosa do Direito de Construir, OODC) is based on the notion that the landowner’s property right is limited to a basic floor area ratio (FAR) that differs from the maximum FAR the area could support. The right to build at a density up to the basic FAR is free, but developers wanting to build at a higher density than the FAR established by zoning law for a particular area must pay compensation to the city. The OODC is defined by the City Statute (Brazilian Land Development Act), the national law approved in 2001, that sets the guidelines for urban policy. The charge for building rights is not considered a tribute or a fee. The air rights above the basic FAR are also considered a public asset, which the city can concede (against payment or not) for urbanistic purposes, according to urban development guidelines.

Although many other municipalities in Brazil are currently implementing the OODC, São Paulo is the only one that has managed to set citywide standards. São Paulo initially approved two basic FARs that were in line with preexisting zoning law: in zones where the maximum FARs were higher, the basic FAR was set at 2.0; in lower-density zones, the basic FAR was set at 1.0. In the same negotiation package, preexisting maximum FARs were incremented to entice developers to the new regime (Maleronka and Furtado, 2013).

After a long transition toward a more consistent system, the City of São Paulo instituted in 2014 a universal basic FAR of 1.0 as the building right that applied to all landowners. The maximum FAR ranges from 1.0 to 4.0 according to zoning. The difference between the basic FAR and the maximum FAR therefore equates to the building rights that must be acquired from the public.
3. Calculating the value of building rights

While several formulas have been used to calculate the land value increment resulting from the OODC, they all have limited accuracy. In theory, the value of land developed with a FAR of 2.0 compared with a basic FAR of 1.0 should be the difference between the residual values of their respective highest and best uses. In practice, the calculation is much more complex because no two buildings in an area are the same and changes in some plots affect the highest and best use of nearby plots.

The prevailing method, the so-called virtual plot method, only partially addresses these complications. Under this calculation, a developer interested in a building a 500 m² structure in a zone where the basic FAR is 1.0 and the maximum is 2.0 could acquire a plot of 500 m² or a plot of 250 m² and acquire building rights to construct the additional 250 m² on that plot. For this additional area, the developer would pay the equivalent of one more plot of land with a FAR of 1 in the same area zoned for a maximum FAR of 2.0.

![Figure 1. Virtual plot logic. Source: the authors.](image)

Since 2002, over 2,500 high-rise licensed projects in Sao Paulo acquired additional building rights, raising over US$1 billion in public revenues. To get a sense of the revenues to be generated from particular projects, consider the following examples.

3.1. Examples of OODC projects

The first example is a corporate development, located at Paulista Avenue, one of the city high-end icons. This 11 floor building produced one of the individual largest land value increment collected under the OODC: it paid around
US$1,800 per additional m², or a total of US$5.7 million for the additional 3,118 m² for an increased basic FAR from 2.0 to 2.96.

The formula approved in 2002 used to calculate the OODC (that is, before the universal unitary basic FAR was instituted) was as follows:

C = \frac{V}{\text{basic FAR}} \times F_p \times F_s \times (\text{intended FAR} - \text{basic FAR}) \times \text{plot area} \tag{1}

where:

C: Compensation

V: Assessed value of land for property taxation

F_p: Planning factor (varies from 0.25 to 1.20 depending on project location)

F_s: Social interest factor (varies from 0 to 1 depending on project use)

For the case at hand, the virtual plot benchmark value was US$3,334.60; the planning factor was 1.1; the social interest factor was 1.0; the intended FAR was 2.96), and the plot area was 3,237.01 m². Therefore, the formula applied was:

C (US$ 5,699.30) = \frac{3,334,60}{2.0} \times 1.1 \times 1.0 (2.96 – 2.0) \times 3,237.01 \tag{2}

Although it is unknown how much the developer actually paid for the plot, municipal sales tax records suggest a market value of about US$10.1 million at the time. This means the land value increment calculated for the additional building rights represents close to full recovery. Thus, for twice the plot area of building rights, the developer would have paid something around US$10.1 million (US$5.05 million x 2), but to build just under one additional time (0.96), the compensation was US$5.7 million.
A more typical building project in Sao Paulo is a residential development on a 2,000 m² plot, with a basic FAR of 1.0 and a maximum FAR of 2.0. The developer acquired the full maximum building rights available, for an assessed virtual plot value of US$598.19 per m²; a planning factor of 0.7, and a social interest factor of 1.0. The compensation for the additional 2,000 m² of building area was US$837,468, or US$419 per m². Note that the redistributive power of these building charges is considerable—the 20 additional high-income apartments (assuming 100 m² per apartment) would fully subsidize 25 social housing units.

It is also important to note that the compensation calculated here is well below the proxy market value from sales taxes quotes in the area at US$4.45 million, or US$2,225 per m². The discrepancy reflects the difficulty of obtaining a virtual plot value, that is, the value of a plot that reflects its use at a FAR of 1.0 when all plots in the zone has a maximum FAR of 2.0. Furthermore, if the planning factor was neutral, that is were not set at 0.7, the compensation due would have been US$1,196,382.86. This is yet one of the many adjustments needed to a system still transitioning between regimes affecting land values and uses.

### 3.2 The São Paulo experience with CEPACs

Brazil’s Certificates of Additional Building Potential (CEPACs) provide an ingenious solution for valuing additional building rights by basing the charges on the amount that developers are willing to pay in a competitive market. These
bonds are issued by the municipality, regulated by the Comissão de Valores Mobiliários (CVM, the Brazilian equivalent of the US Securities and Exchange Commission), and sold by electronic auction on the São Paulo Stock Exchange Market. CEPACs were created in 1995, sanctioned by the City Statute of 2001, and first implemented in 2004.

CEPACs are used in urban operations (UO), which are delimited urban areas (polygons) subjected to zoning redefinition (for land use and density) and supported by improved urban infrastructure. UOs involve large-scale areas (typically over 500 hectares) and have building rights over and above the restrictions imposed by the master plan or zoning ordinances. All revenues resulting from the sale of these building rights revert to the UO to be invested in urban infrastructure but also in social housing. There are currently four urban operations in progress in Sao Paulo, and just two of them have collected about US$2.7 billion in revenues over 10-year development periods.

Each urban operation issues its own CEPACs and conversion table of m² equivalences for each zone within the UO. This adjustment is necessary because each CEPAC provides the right to build one additional m² according to the zoning plan for that particular zone. For example, one CEPAC might be worth only 0.8 m² closer to a main avenue, but 1.2 m² in less desirable areas.

CEPACs offer some noteworthy advantages. First, they address the difficult issue of assessing the market value of the land price increment resulting from UOs, and they reduce the transaction costs involved in negotiating the impacts of the project on individual properties. In addition, CEPAC auctions help local administrations anticipate the funds they need to invest in infrastructure and services in the redevelopment project. Furthermore, selling CEPACs in tranches makes it possible to monitor and finely calibrate the market. The fact that the funds are earmarked reinforces developers’ confidence in the system and prevents legal appeals.

Auctions of CEPACs may be public (to acquire development rights) or private (as a currency with which to pay contractors). The face value of a new offering of CEPACs starts with the value from the previous auction. In the seven auctions for the Faria Lima UO, for example, the offered value started at US$550 in 2004 and ended at US$2,100 in 2010. The US$2.7 billion raised by the two UOs enabled São Paulo to defray US$150 million of the costs for the new Ouro metro line, and supported construction of an iconic bridge that cost over US$100 million. Some US$57 million of the CEPAC funds were also used to redevelop in situ Jardim Edith, a slum area located in one of the most expensive areas of the city.
3. Example of a CEPAC project

The site of a former bicycle factory, with an area of 80,000 m², was sold for US$145 million in 2010 for conversion to a mixed-use development. In November 2014, the developer presented 246,076 CEPACs to the municipality to add three times the plot area of building rights. The CEPACs were acquired at auction for US$120 million. Thus, assuming a FAR of 1.0 for the whole area, the land component of the cost would have been US$1,812.50 per m². The additional 264,076 m² of land (i.e., of building rights) were acquired at US$487 per m². The difference can be explained by the non-computable areas (for garages, balconies and terraces, playgrounds, and the like), possible favorable auctioning conditions (i.e., no higher bids to compete with), and likely other externalities that may have affected the price (e.g., a planned transit station). Unlike the original sales price of US$145 million, the CEPAC values thus reflect the overall conditions in the UO area where the project was sited.

![Figure 4. US$120 million CEPAC mixed-use development. Source: orealizacoes.com.br](image)

Were it not for these building rights charges, a significant share—if not all—of the land value increment obtained from these additional rights would have gone to the original landowner.

4. Potential revenue from OODC

Revenues from the OODC have fallen short of their potential for several reasons. As already noted, a citywide basic FAR was not set before 2014 and cadaster values used to benchmark the charges are known to vary as much as 30 percent from the full market value. Discounting factors applied for certain structures (e.g., environmentally sustainable buildings) and exemptions for social housing and other non-computable areas of high-rise buildings...
further reduce potential net collections from public sales of building rights. Clearly, citywide adherence to the basic FAR of 1.0, improvements to value maps, and changes to discounting factors are in order.

For example, developers in the City of São Paulo launch an average of 30,000 multifamily housing units per year, amounting to US$5.95 billion in sales. Based on the calculations provided above, a conservative estimate of OODC—assuming land value accounts for about 18 percent of the sales price, and one-third of its value accounting for the OODC—additional building rights charges would have been about US$360 million per year.

Figure 5. Real estate units launched and total sales prices in São Paulo

Source: secovi.com.br

A host of other factors also can reduce a FAR of 6.0 or more (for a building with 24–26 floors and occupying 25 percent of the plot) to the average FAR of 2.5 used in the city. In effect, an incentive to build residential projects, created in 1979, known as Adiron’s formula, was still in place for most of the 2004–2017 period, adding up to one free FAR for vertical residential developments by reducing the occupancy rate. Thus, with an occupancy rate of 0.5 and basic FAR of 1.0, one can reach the basic FAR of 2.0 (at no charge) when the occupancy rate is reduced to 0.25. In 2014, this incentive was eliminated. Moreover, the non-computable portion of a project could rightfully be reduced to 25 percent from the current 59 percent. All in all, these adjustments would have brought the public revenues from additional building rights to well over US$1.0 billion per year.

Adding to these potential revenues from building rights charges from individual plots, the auctioning of CEPACs results in average proceeds about US$250 million per year—about half the amount that this city of 11 million
inhabitants collects in property taxes. Most important, these additional revenues would practically double the overall investment capacity of Sao Paulo.

5. Conclusion

Value capture policies and tools are undeniably gaining acceptability around the world. But assessing land value increments from public administrative actions is still a challenge for many jurisdictions. The São Paulo experience illustrates more than one way to make these valuations, and although imperfect, demonstrates that it is feasible to charge for building rights. The fees generate much-needed financing for urban infrastructure and social housing, while also imposing a fairer distribution of the costs and benefits of urbanization.

São Paulo’s charges for additional building rights paid by individual projects or through the auctioning of building rights through CEPACs for large redevelopment areas show that the potential payoffs are indeed substantial. Improvement of data sources and their management to more accurately estimate virtual plot benchmarks values, and elimination of unjustified discounts, with the growing sophistication of property developers’ practices, would result in greater accuracy and higher revenues from implementing value capture tools in Sao Paulo and other municipalities.

6. References


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