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Limits of Negotiable Developer Obligations

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Abstract: Many local authorities apply public value capture on new developments to cover the costs of additional public services. The development obligations (DO) they apply can be either negotiable (NDO) or non-negotiable (NNDO). This article examines the limits of NDOs by comparing three national case studies according to the basic principles of proportionality, causality, connection, and lack of transparency for developers. Well-developed building land models and a delineation of applicable cost types offer more transparency for the developer and enable the municipal authorities to establish a fairer distribution of burdens based on actual benefit.

Keywords: public value capture; development obligations; land value

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1. Introduction

"There is nothing more important for the progress of our economies than good regulations. By good regulations is meant the sort that serves to enhance the wellbeing of the community at large" [1] (p. 3).

Public administration shapes economic prosperity, social cohesion, and sustainable growth. It moulds the environment for creation of public value [2].

The shortage of financial resources is a Europe-wide problem. Countries as well as municipalities have decreasing means to fulfil all their public commitments. Modernising governance is a way to relieve economic and budgetary pressures, to design and deliver needed structural reforms, to remove existing barriers, and to foster innovation. Public value capture is essential to improve the refinancing of public infrastructure to keep the necessary budget for important duties such as education and health care. For this reason, it is one of the key factors of responsible land management, and smart tools are needed for successful implementation [3]. The interest in this topic has recently grown exponentially among scholars and practitioners. Public authorities are actively looking to finance public infrastructure [4]. In the literature, a wide agreement exists on capturing value from infrastructure improvements and public services. Although it raises political opposition, the same occurs with the value from changes in land use regulations [5].

In most developed and developing countries, public control over land use planning and urban development aims to strike a delicate balance between public and private rights over land. The tension between the public right to manage a resource as scarce and socially valuable as urban land and the protection of private property rights is framed in different legal, political, institutional, economic, and cultural environments that have evolved over time [6].

In the literature, public value capture remains an open-ended term variously defined and used.

Several definitions focus on the core of public value capture: capturing unearned benefits resulting from actions other than the landowner's (especially public actions) [7], [8] (p. 4), [9] (p. XIII), [10] (p. 2). However, particular tools of public value capture (including developer obligations) may be tangent to the value of buildings resulting from the action of the landowner. For this reason, we share the even more comprehensive definition of Munoz-Gielen and van der Krabben to enable a broad analysis of the limits of negotiable developer obligations: the generic term public value capture includes "all instruments that capture all possible increases of the value of land and buildings, whether they are considered taxes or not" [11] (pp. 7–8).

In order to retain public support, the legislation should determine in advance which public services may be financed by the captured value increase and should expose this to the public. However, there is built in tension between this objective and the need to maintain flexibility to accommodate changing needs for public services or changing public perceptions about what services merit public support. Traditional services such as technical infrastructure may compete with newer items on the list such as educational facilities, environmental conservation, historic preservation, or affordable housing [7]. A solution might be a more general regulation by law in combination with resolutions on the municipal level defining the details of developer obligations. This resolution can be more easily adapted to changing local conditions (e.g., SoBoN Munich, [12]). Negotiable developer obligations (NDOs) are generally negotiated between public bodies and developers. They are easier to introduce than non-negotiable developer obligations (NNDOs) because they require less regulation. Furthermore, they can definitively offer the opportunity of adapting rapidly to new conditions without legislative changes. On the other hand, they often show problems of non-transparency [11].

Furthermore, descriptions of the typical limitations of those obligations can be found in the literature. When reviewing the experiences in different countries, NDOs initially only required investments in "hard" infrastructure directly related to the development (e.g., roads). This link is evident and does not arise much in the discussion. With time, many countries expanded this link to include infrastructure located outside of the development area and "soft" or "social" infrastructure (e.g., schools, green spaces, and affordable housing). In this case, the link is not always clear or at least arouses more discussion [13].

Furthermore, there is the danger that a municipality might be too motivated by the financial aspects of planning, which could compromise the public interest of good planning. This "planning in exchange for money" has to be avoided. On the other hand, the municipality may act to the disadvantage of a particular developer forcing conditions not linked to the necessity of the development. This misuse of public competencies also has to be avoided [14]. For these reasons, it is essential to find criteria for factual limits (causality) as well as spatial limits of the connection between obligation and development. Without these criteria, the contractual arrangements are at risk of lack of acceptance and of being challenged in court.

Proportionality is a general requirement for administrative action. Arbitrary action and unequal treatment of citizens by public authorities must be prevented. NDOs aim to strike a delicate balance between public and private rights over land [6]. However, the scale and dimension of public value capture are controversial, discussed in many countries, and reasonable criteria are required to enhance acceptance and legitimacy of NDOs.

In these different categories (connection, causality, and proportionality) there are many different aspects to consider and it would be unfeasible to handle of all them in this paper. For this reason, the authors decided to focus on one relevant aspect for each country. The resulting research questions are:

- Proportionality: Which criterion should be used for proportionality check (land value increase or total return) and what is the maximum share of value capture for this criterion?
- Causality: What is the factual limit of "connection" between obligation and development (e.g., financing a cultural centre)?

- Connection: What is the spatial limit of "connection" between obligation and development (e.g., off-site costs)?

2. Materials and Methods

The scientific method is a comparative case study. This method has its strength in obtaining detailed and relevant data. On the other hand, a commonly discussed disadvantage is the difficulty to generalise from a single case [15]. Germany has been chosen for this case study because of the long tradition of using developer obligations and especially the established use of urban calculation to evaluate the proportionality of those regulations. On the other hand, the Netherlands changed their strategy from land banking to developer obligations. There findings are especially interesting for the establishment of new tools. Finally, Belgium is an interesting example because of its strong federal administrative structure. Each author will present in detail an aspect of the limitations of developer obligations, which is currently discussed in their home country. The considerations are based on concrete case studies, which are presented in more detail in the respective sections. The discussion will be also linked to theoretical aspects in literature. The remaining authors will reflect on the problem from their perspective. Finally, the findings will be discussed to find a general view on the problem to reduce the uncertainty of how to handle negotiable developer obligations or how to establish this tool of public value capture.

3. Results

In this chapter, we will answer our three research questions on proportionality, causality, and connection. First, a description of the problem by the country that formulated the question will be given, and then the remaining countries will give their perspective on the problem. The different views will be discussed in Section 4 to derive recommendations to solve these problems.

3.1. Which Criterion Should Be Used for Proportionality Check (e.g., Land Value Increase or Total Return) and What Is the Maximum Share of Value Capture for This Criterion?

3.1.1. Proportionality—Description of the Problem (Germany)

Generally, proportionality check can refer to costs related to the development or the revenue from the development. In Germany, the discussion focuses on the revenue. Typical options to check proportionality are total investment, yield of the development including buildings, and land value increase. The discussion is not new and began in the 1990s [16,17]. German legislation only contains the provision that "the agreed benefits must be reasonable in all the circumstances" (Art. 11 BauGB). However, in Germany, land value increase has been used in practice over the past decades. Munich was one of the first cities in Germany to adopt negotiable developer obligations. The so-called socially equitable land use policy (Sozialgerechte Bodennutzung—SoBoN) was launched in 1994. The criterion to check proportionality is the increase in land value. The investor's guaranteed share is one-third of the increase in gross value. This share allows the investor to bear all risks and to expect sufficient profit. If liabilities exceeded two-thirds of the increase in gross value, the investor does not have to bear all these costs. The provision of affordable housing and local infrastructure (technical infrastructure such as roads as well as social infrastructure such as kindergarten) are important legal objectives of developer obligations defined in article 11 of the German Statutory Code on Construction and Building (BauGB). In the example presented in Figure 1, the investor is left with a larger share of the increase in the land value after the financial coverage of all financial liabilities than the guaranteed minimum (shown in the figure as "net increase in value"). The calculation of the land value increase is realised by the municipal department of valuation for each development.

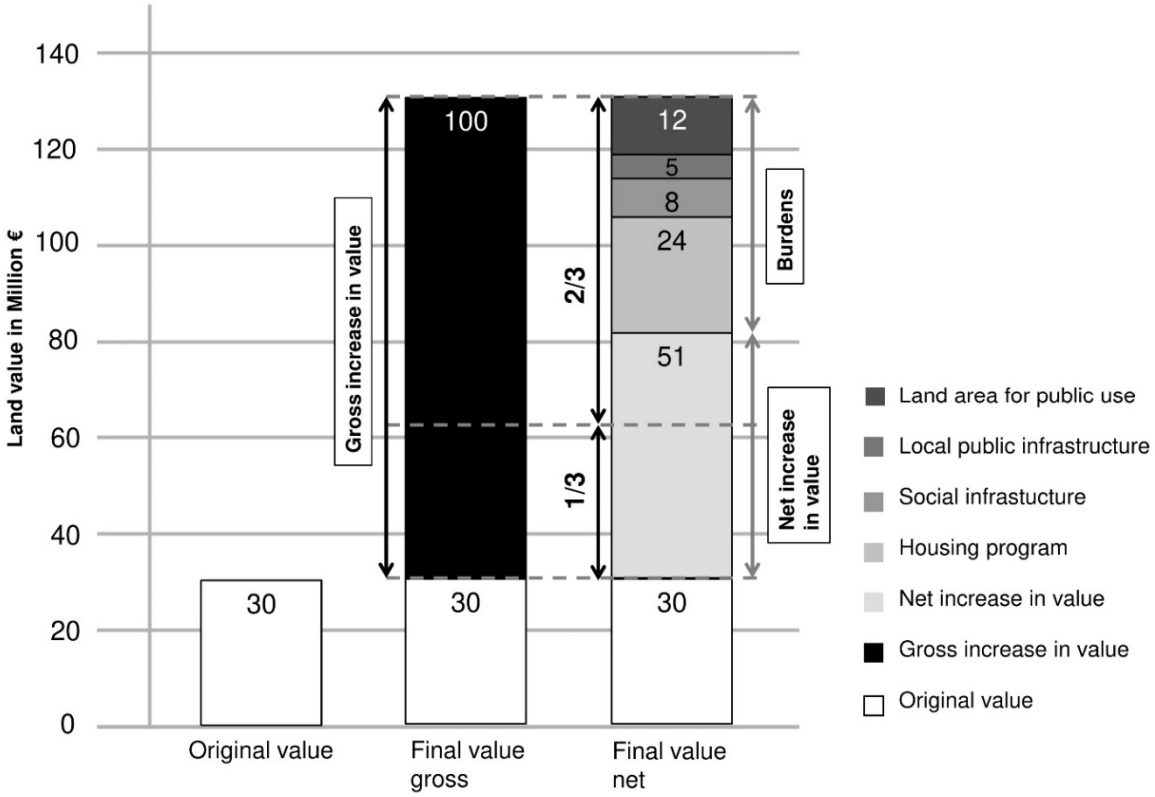

Figure 1. Logic of SoBoN developer obligation model [18].

Meanwhile, many cities in Germany adopted this concept and it is generally accepted to capture two-thirds of the land value increase to cover development-related expenses. However, two discussions started in recent years. On the one hand, critics call for a higher share of the land value increase for the municipalities. On the other hand, particular cities started to use the return on the development, including buildings for proportionality check (instead of just land value). The first city was Cologne in 2017 [19]. There are two reasons for this change. On the one hand, the planning related land value increases in many municipalities are not as high as in Munich. On the other hand, the land value increases in greenfield developments are much higher than in inner developments (e.g., transformation of former commercial areas into residential areas, cf. Figure 2).

Due to the high original land value, the high-yield development in the good location is much less burdened than the development in a simple location.

The situation changes, if the yield is used as the criterion (cf. Figure 3).

The calculations are based on the possible return from privately financed rental housing (management period 20 years). Using the complete finance plan commonly used in the housing industry, all costs and revenues of the project are projected on the time axis, the resulting income is then discounted and totalled. As the calculations show, the two-thirds rule concerning land value increase corresponds in the simple location (Area 1) to about a 30% rule in the return method (233 and 240 EUR/m^2). A transfer of this scheme to a more productive location (Area 2) leads to a higher permissible value capture regardless of its initial land value.

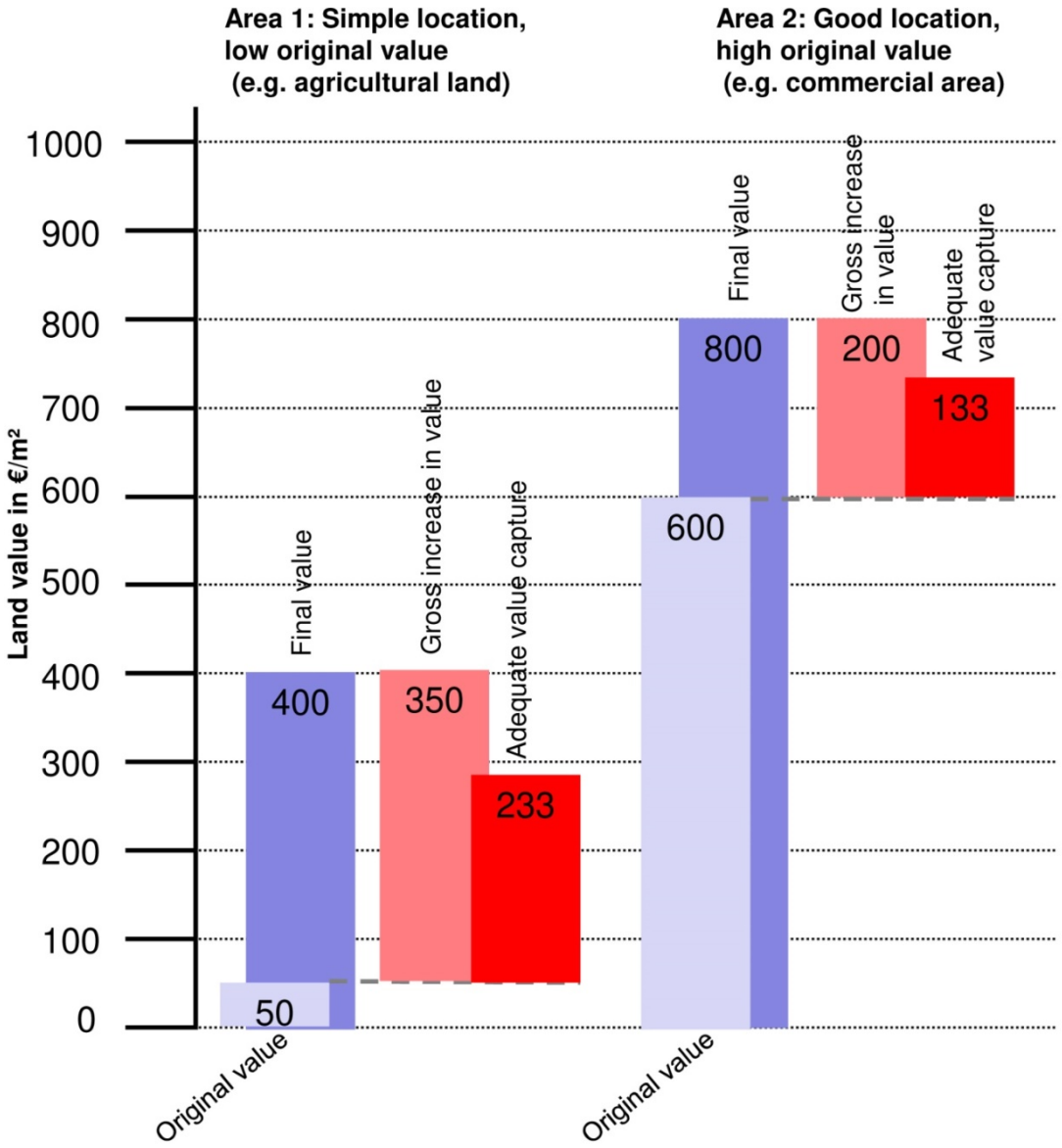

Figure 2. Principle of proportionality check based on land value increase in simple and good locations (following [20]).

On the other hand, there are important criticisms of this method. Generally, public value capture focuses on "unearned benefits". It is commonly accepted that land value increases fall into this category. There may also be unearned benefits for constructions, provided that the increase in the value of the property exceeds the construction costs. This is regularly the case in regions with high real estate prices. Several external factors influence the level of prices. Economists stress the price determination as the interaction of supply and demand. The determinants of rising land prices either work as drivers of the demand side or barriers on the supply side [21]. Changes such as population increase and local economic growth are important drivers on the demand side [9,22,23]. Moreover, public services (especially technical infrastructure) and public-sector expenditures, promoting the quality of life in the city, are reflected in property values. Furthermore, environmental amenities such as a mild climate or a location close to water bodies or mountains may have an influence. These factors are also well known in real estate valuation. They are generally discussed under the notion "macro location" [24]. Therefore, from a legal-philosophical point of view, capturing parts of these benefits may be basically justified.

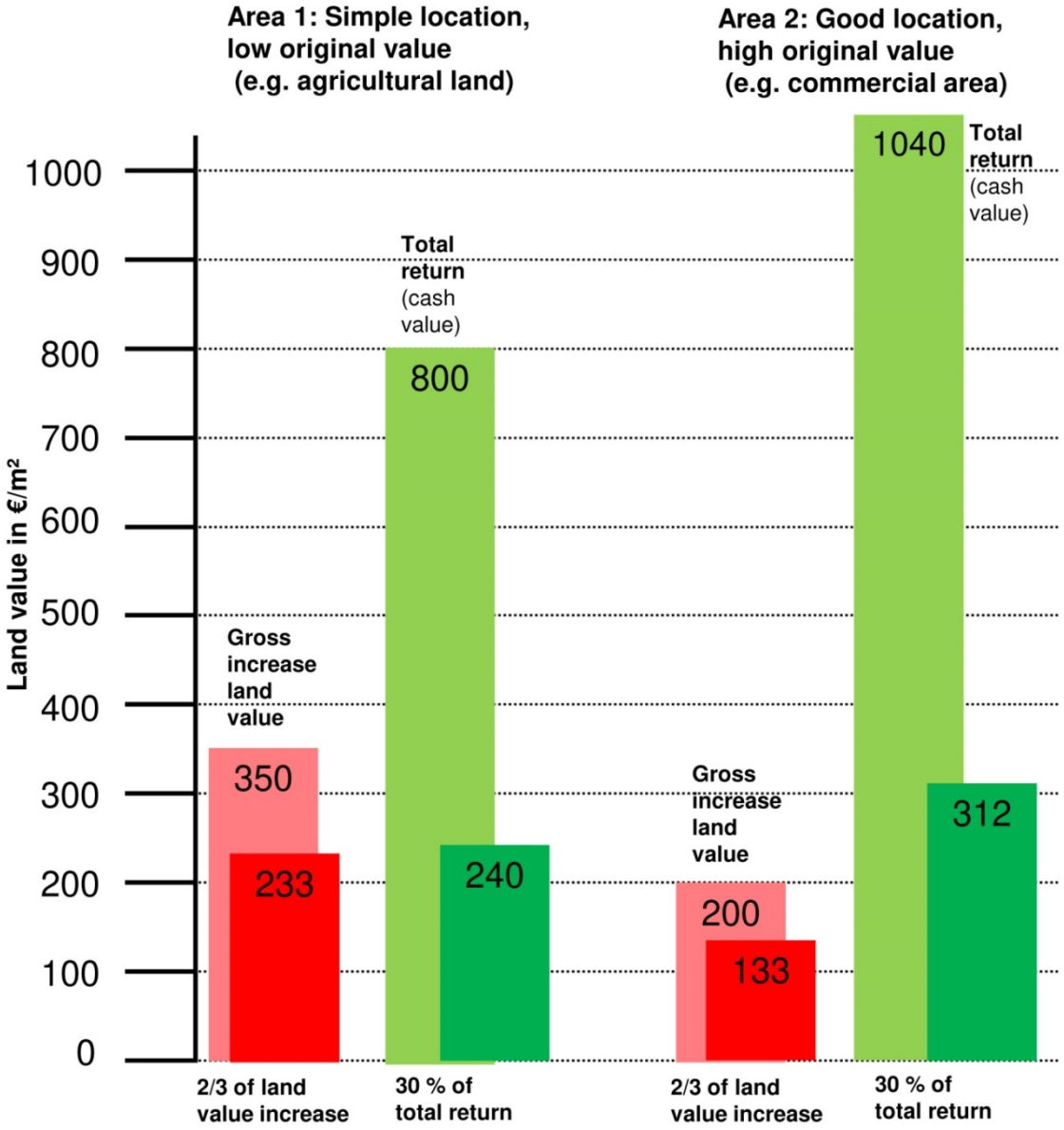

Figure 3. Comparison of proportionality check based on land value increase (red) and total return (green) in simple and good locations (following [20]).

However, there is a problem of valuation. It is generally accepted that the residual method leads to uncertain results, if a relatively small residual (total return) is derived from much larger input variables (earnings and investments, cf. Table 1).

Table 1. Reliability of results of the residual approach (own presentation).

Example Residual Approach			
	Reliability of result		
	Estimated amount [€]	Accuracy of estimation [%]	Accuracy of estimation [€]
Earnings	10,000,000	+/−5	+/−500,000
Investments (e.g., purchase of land and construction costs)	9,000,000	+/−5	+/−450,000
Total return	**1,000,000**		**+/−672,681**

The calculation of earnings and investments relates to transactions in the future and is therefore based on assumptions. For this purpose, lump sums are used as empirical values (e.g., construction costs, land values, rents, and interest level). It is disputed to what extent any interest for loans to finance the development should be included in the calculation. The input variables are therefore subject to a certain degree of uncertainty (quantified at 5% in the example). However, this (relatively) small uncertainty in the input variables leads to a very large uncertainty in the result due to the unfavourable error propagation of the procedure [25]. In the worst case (underestimation of investments and overestimation of earnings), the total return on investment would be reduced to EUR 50,000 (EUR 9,500,000–EUR 9,450,000). However, even the standard deviation amounts to about 67% of the result:

$$\sqrt{500,000^2 + 450,000^2} = 672,681 \quad (1)$$

Therefore, there are good reasons for taking into account the return from constructions but also good reasons for a different treatment compared to land value gains. On the one hand, land value gains are undisputedly unearned gains. On the other hand, considerable larger investments are necessary to achieve a return from constructions and the return is very small in relation to these investments. In the above example, the estimated return would be only 10% of the investment, and in the case of land value increases from agricultural land to building land, the return can easily be 10,000% (e.g., value of agricultural land 10 EUR/m^2 and value of building land 1000 EUR/m^2). In addition, the estimation of the return from constructions is highly uncertain.

Overall, the returns should therefore be treated separately. The capturing of land value increases in the amount of 67% is established in practice and jurisprudence. The additional return from the constructions can be calculated from the difference between the total return and the land value gains. The captured percentage rate should be considerably lower in order to avoid the situation where the factual earnings and investments lead to inadequacy. In addition, the investor bears a considerably greater risk, since the investor receives a comparatively small return for much larger investments. Taking into account the high standard deviation of the estimated return and the risk bonus for the investor, a public value capture in the range of 20% seems appropriate. In the example from Figure 3, the following situation would arise: In area 1, the return of constructions results in 800 EUR/m^2 − 350 EUR/m^2 = 450 EUR/m^2. Accordingly, the captured value would be 323 EUR/m^2 land (67% of 350 EUR/m^2 plus 20% of 450 EUR/m^2). In area 2, the return of constructions results in 1040 EUR/m^2 − 200 EUR/m^2 = 840 EUR/m^2. Accordingly, the captured value would be 301 EUR/m^2 land (67% of 200 EUR/m^2 plus 20% of 840 EUR/m^2).

For this reason, there are two important research questions from the German perspective, which should be discussed from the Dutch and Belgian view:

Which criterion should be used for proportionality check (land value increase, total return, or other option)?

What is the maximum share of value capture for this criterion (e.g., 2/3 of land value increase or 30% of total return)?

3.1.2. Belgian Perspective

From the Belgian perspective, a similar distinction can be drawn between the levy on land value increase and the skimming of profit obtained by construction and real estate sale. Both the Flemish and the Walloon regional governments levy a tax on planning gains when rezoning nonbuildable to buildable land, the Brussels metropolitan region does not (yet). Depending on the size of the parcel, the Flemish and Walloon levy amounts from 1 to 30% of the so-called 'presumed added value' on land. Since the 'presumed' value increase established by Flemish decree is in many cases an underestimation of the actual added value and the levy percentage is very low (nonexistent for small parcels of land), the lion's share of the revenue is left to the landowner.

From a socially just approach, the planning gain tax on upzoning should be the mirror image of the compensation due in case of downzoning to unbuildable land. Considering

the oversupply of building rights that must be wiped out in all Belgian regions, this is a key comparison. Unfortunately, the portion of capture and compensation is not balanced in Belgium. The compensation share borne by the government is fixed at 80% of the value loss, whereas the capture of increased land value only varies up to 30%. Prompted by a political discourse of property rights protection, the Flemish Parliament is even considering a new compensation scheme up to 100% of the value loss. To reduce this imbalance an increase in the planning levy to a limit of 50% is considered, but from a socially just point of view, this levy should be levelled to an equal 80 or 100% portion. After all, upzoning happens through society without any contribution by the landowner.

Furthermore, rezoning buildable land to higher density is not eligible for this regional levy. The Flemish government has decided to leave the skimming of densification gains to the local level. However, in the Flemish region, there is no obligation for local authorities to apply 'public burdens', the implementation of DO is a discretionary decision made by the local authority.

Public charges on the development of projects are allowed in the three Belgian regions. Cities and municipalities impose public burdens on development rather from a public cost approach (see Section 3.2.1) and only to a limited extent from a social correction approach, as is the case in Germany. As a result, the Belgian approach focuses more on the cost side for the government and less on the revenue side for the developer. The German method requires a parallel calculation of the development cycle by the city. Extensive valuation and market expertise within the administration is needed, otherwise, the local government risks relying on erroneous estimates. Belgian cities with a value capture ordinance avoid this challenge by imposing a fixed fee on top of the public burdens in kind. The developer fee covers additional public investment in the vicinity of the project. For example, EUR 50 per developed m^2 residential floor space is due in Brussels (starting from 1000 m^2 development), EUR 50 in Antwerp (from 5000 m^2), and EUR 55 in Liège (from 1000 m^2). Depending on the weight of public charges, the fee can be reduced during negotiations with the developer. This system is quite simple and transparent for all parties. On the other hand, a flat rate may result in a rigid or low fee if it is not based on thorough real estate research and value calculation causing the local government to lose revenue.

3.1.3. Dutch Perspective

As we will further discuss in Section 3.3.1, Dutch DO regulation is based on a two-step approach. Here, we discuss the situation in which an agreement with regard to the DO cannot be reached voluntarily. In that case, the municipality must define a non-negotiable developer obligation, to be charged to the developer, based on a public-law "Development Contributions Plan" (*Exploitatieplan)*. Three criteria are in place which help to define the size of the DO: benefit, causality, and proportionality. The concept of proportionality as it is used in the Dutch legal system has a different meaning than in the German context. Proportionality refers here to the costs of off-site infrastructure that can be charged to a developer who is developing a building location. If this off-site infrastructure benefits other living areas as well (new and existing), only a proportional part of these infrastructure costs can be charged to the developer (assuming that remaining costs will be charged to other developers that benefit or will be covered by alternative funding). All of the on-site public infrastructure costs can be charged to developers as compulsory, as long as they belong to the type of costs that have been specified in the law (*kostensoortenlijst*; see Section 3.2.3). Off-site infrastructure costs that can be charged to developers are distinguished in three categories: (1) infrastructural provisions that benefit multiple areas (*bovenwijkse voorzieningen*) (e.g., road infrastructure, public transport, and regional recreational facilities, (2) cost equalisation (*bovenplanse kosten/verevening*) (e.g., social housing development or transformation of industrial areas outside the plan area), and (3) 'voluntary' contributions to spatial developments (*bijdragen ruimtelijke ontwikkelingen*) (e.g., road infrastructure, regional recreational facilities, and projects to increase sustainability). The first two cost categories can be compulsory charges (similar to on-site costs, but additionally, the costs must meet the

criteria of benefit, causality, and proportionality). In case type 1 or type 2 costs are charged, the municipality must prove that these costs meet the criteria of benefit, proportionality, and causality. The third category does not have to meet these three criteria, but cannot be charged compulsorily. Additionally, after taking into account benefit, causality, and proportionality, the size of the developer obligation is restricted by the financial feasibility of the building plan. In other words, the developer obligation should not result in a financial loss: the total costs of the building plan may not exceed the total returns of that plan. This implies that in theory all of the on-site public infrastructure costs can be charged and the entire attributable off-site public infrastructure costs as well, as long as the financial feasibility of the building plan is not at stake. However, with regard to the off-site public infrastructure costs usually applying the criteria of benefit, causality, and proportionality would result in charging only part of these costs to one particular private developer.

3.2. Causality: What Is the Factual Limit of "Connection" between Obligation and Development?

3.2.1. Causality—Description of the Problem (Belgium)

An ever-widening 'shopping list' of obligations is emerging [26], but when is there still an actual connection between obligation and development and at what point do limits come into play?

Infrastructural obligations on site are often inherent to development and rather an internal condition than an external obligation in the true sense of the value capture concept. Development obligations must cover additional tasks and costs that a local authority has as a result of the project. Therefore, a logical connection between the project, effect, and obligation is needed. Regardless of whether the DO is in kind or payment, the goal of this investment must be of general interest and not (solely) serve the private interest.

Many European cities impose in natura or financial obligations for public facilities and services, social and affordable housing, and other needs. Obligations consist additionally or exclusively of a development fee that the local government needs to earmark clearly for public purposes related to the project. Otherwise, the DO is diluted to a mere tax without any further connection to the initial project. To explore the limits of causality, we will take a closer look at some relevant cases on this matter in Flanders, the northern region of Belgium. Within federal Belgium, the Flemish regional government determines the limits of development obligations or so-called 'public burden' cities and municipalities can impose on private projects. The regional level does not impose any direct obligations of its own. The single regional obligation, the Flemish decree on social and affordable housing, only lasted four years. From 2009 to 2013, an obligation of 20% for social and affordable housing was implemented. This regional obligation was met with resistance from some developers. As a result, the most important chapter on social housing in the decree was annulled by the European Court of Justice because Flanders did not provide notification of the tax breaks on social housing and its infrastructure as required by the State Aid Treaty [27]. Subsequently, the Belgian court likewise annulled the decree and ruled that without the supportive measure of tax breaks the social DO is disproportionately excessive. The European ruling did not question the legitimacy of social development obligations; the social housing chapter was cancelled on procedural grounds. The following regional government, of different political composition, did not amend and reintroduce the social decree. Since then, there is no longer a regional obligation for social housing in Flanders.

The Planning Act of Flanders (VCRO decree) [28] provides that the local government can impose a "public burden" in the planning permit to compensate for the public tasks resulting from the private project. According to this decree, the public burden must meet several conditions. One of the requirements is the factual connection between development and public burden.

Public infrastructure such as roads and sewage are obvious technical obligations. Moreover, the relinquishment of land is explicitly mentioned in the VCRO decree as a possible DO but within certain limits; it must be land on which public roads, public green areas, public buildings, or utilities have been built by the developer or will be built by the

local authority. In contrast, imposing social housing on private development is no longer possible. In a rigid legal approach, it is considered that there is no causal link between specific private development and social policy, and because of this lack of connection, no social obligations can be enforced. Nevertheless, as other Western European countries demonstrate, the integrated realisation of social housing is common and can be justified from the point of view of a socially balanced and inclusive development of the urban area.

Another important type of obligation in the context of balanced and sustainable development is green compensation. There is a clear link between the sealing of soil and the addition of building mass and its heat island effect in the cities. Mitigating measures such as cooling nature, forestry, and water surfaces in and near the city are of vital importance in this era of climate change. For example, the city of Ghent negotiates a development obligation of 20 m^2 public green per housing unit for large-scale developments. However, if this DO cannot be fulfilled on-site, the local government drops the obligation. Substitute retribution could offer a solution in such cases, provided that the local government earmarks the financial resources for green projects and invests the money in large-scale nature and water projects. The funds received must therefore remain reserved within the local budget for these kinds of compensatory projects.

In the Flemish region, there is no obligation for local authorities to apply development obligations, the implementation of DO is a discretionary decision made by the local authority. Consequently, public value capture ranges in practice from minimum technical obligations, some additional obligations to maximum capture based on thorough value calculation and active land policy conducted by the local authority. An obstacle in the implementation on the local level is, in the case of Flanders, the administrative fragmentation in 300 municipalities for a population of 6.5 million. As a result, there is insufficient knowledge and expertise on negotiating DOs at the local level. In particular, the smaller municipalities have too few staff and a lack of experience with negotiation. Without an ordinance or at least a guideline, the negotiations are conducted ad hoc and in many cases limited to minimal technical requirements. On the other hand, it does not make sense for every small municipality to impose development obligations, as land prices can be very low locally and the municipality has to attract and support private investment.

An exception to this is the city of Antwerp which, following Brussels, has had an ordinance on public value capture since 2016. Beyond certain development thresholds, a development fee must be paid, or works in kind can be agreed upon for the same value. The development fee is not related to the profit made on land but determined by a public cost approach (SOK or 'stedelijke ontwikkelingskost'). The costs of public infrastructure are recovered by a fixed rate; for instance, in the case of housing construction from 5000 m^2, a fee of 50 EUR/m^2 floor space is imposed. The first version of the ordinance (2016_CBS_06172) stated that these funds would be used for public facilities in the project's vicinity. In a supplementary ordinance (2017_CBS_05086), the city council decided that projects located within a 500 m range of the Antwerp Ring road would be taxed twice as much to finance mitigating measures along this highway. However, there is no economic rationale for taxing these specific projects more, as their location is less attractive within a traffic zone of air pollution and noise. In addition, there is no factual connection between these local projects and the national ring road, which needs to be improved for the liveability of the city and its inhabitants regardless.

Consequently, the supplementary ordinance became controversial when the city council allowed a residential project of 122 flats within the range of the ring road provided that the developer would pay a fee of EUR 1.5 million. The council earmarked EUR 1 million to the ring road and the remaining EUR 0.5 million to the adjacent rock venue, of which the operator opposed the construction of the housing project. Both the developer and the operator of the rock venue appealed, for different reasons, against the building permit and were proven right. It was ruled that the earmarking of the fee—the ring road and concert hall—were unrelated to the project, forcing the city of Antwerp to revise its ordinance. In a new ordinance (2018_CBS_02203), the city council specifies the earmarking

of the development fee clearly for *public* facilities and affordable housing *in* the project area. Depending on the public development programme for the area surrounding the project, the fee is earmarked in the building permit or contract and may include public infrastructures such as green spaces, playgrounds, sports infrastructure, public parking, service centres, schools, kindergartens, or affordable housing. Although the city council was criticised for its system of public charges, it adjusted its ordinance which can now serve as an example of public value capture for the Flemish region. In 2020, the city of Antwerp received EUR 3.6 million in development fees, which it will invest in a park, bicycle infrastructure, and playgrounds.

3.2.2. German Perspective

The legal objectives of developer obligations in Germany are defined in article 11 of the German Statutory Code on Construction and Building (BauGB). The "contracts of measures" include the contracts of planning (e.g., the draft of the preparatory or legally binding land-use plan) and the contracts to prepare the building activities (e.g., demolition of old buildings, removal of plants, or contaminated soil). The "contracts of edification" serve to promote and secure the objectives pursued with the land use planning. They may regulate the use of the plot (e.g., type and grade of the authorised use and the obligation to finish the construction of the buildings in a given period of time), the ecological compensation, the housing supply for sections of the population who have extraordinary problems finding adequate accommodation, or the housing supply for the locals. The most important group of contracts are the "contracts to cover the follow-up costs". They can be used to cover the costs of the municipality (not another territorial authority) in the past or in the future, which are a condition or consequence of the development of the area (e.g., infrastructure in the broader sense). For this reason, the provision of affordable housing and the realisation of ecological compensation are explicitly allowed in Germany [29].

Generally, there has to be a strict objective connection (causality) between the obligation of the private contractual partner and the urban development. However, so-called "limping exchange agreements (hinkende Austauschverträge)" have become established through case law. An example:

> *A person owns several land plots in a central city location. These are former sand pits that have been filled in for a long time, in which "homo steinhensis" was found in 1933. In 1982, the municipality adopted a legally binding land use plan for this area. In the course of the negotiations on a voluntary redevelopment of the land for the implementation of this plan, it is agreed among other things that the landowner will pay a "voluntary amount" of EUR 40,000 to the municipality, which is to benefit the museum of prehistory run by the municipality.*

The Federal Administrative Court made the following ruling on this case: The question raised as fundamentally important, whether the payment of a donation can be a permissible object of an urban development agreement, is not capable of general clarification. The answer depends in particular on the purpose of the monetary payment and the contractual context. In this case, the parties involved have established a connection with the municipality's urban land use planning out of mutual interests. The landowner hopes to preserve a plot of land that is ready for construction and has increased in value, and the municipality pursues an objective covered by article 1 BauGB by creating a green space on the grounds of the Museum of Prehistory. Thus, even without an explicit contractual provision, there is an internal connection here, which is why no violation of the prohibition of tying agreements is to be seen in this specific case. The permissible amount of the donation is a question of proportionality [30].

Accordingly, German municipalities are entitled to pursue objectives according to article 1 BauGB in developer obligations. These objectives include, among others, the housing needs of the population, the social and cultural needs of the population, the preservation, renewal, further development, adaptation, and conversion of existing districts, as well as

the preservation and development of central service areas, the concerns of building culture, heritage protection and conservation, and the concerns of environmental protection.

3.2.3. Dutch Perspective

The situations in which developer obligations can be charged, the size of developer obligations, and the type of amenities and public costs that can be 'covered' by developer obligations are defined in Article 6.12 and 6.13 of the Wet ruimtelijke ordening (Spatial Planning Law) and further specified by a cost category list in Article 6.2.3 to 6.2.5 of the Besluit ruimtelijke ordening (Spatial Planning Decree). These mentioned regulations all relate to the public law route, where costs can be recovered through a "Development Contributions Plan" ('*exploitatieplan*'). First, developer obligations can only be charged with regard to costs that benefit the building plan and that have a causal relation with the building plan. If these costs benefit other locations as well, the costs can only be charged proportionally to the building plan. Second, Article 6.2.3 to 6.2.5 of the Besluit ruimtelijke ordening specify in detail which types of costs can be charged (*Kostensoortenlijst*). Other types of costs that have not been specified in these Articles 6.2.3 to 6.2.5 cannot be charged under public law. While the introduction of this regulation in the 2008 planning law has strongly increased transparency, both for municipalities and private developers/landowners, with regard to cost recovery ('kostenverhaal') of public costs related to building plans, current practices show that controversy remains with regard to off-site large infrastructure costs, as we will elaborate in Section 3.3.1.

Contrary to the public law route, negotiable developer obligations can be laid down in a private law agreement ('*anterieure overeenkomst*') in the Netherlands. Private law agreements require consensus and are in principle free of form. In these private law agreements, the municipality and the private land owner can agree that the developer will also reimburse costs for facilities that cannot be recovered under public law. For example, 'voluntary' contributions to spatial developments, which have their origin in article 6.24 paragraph 1 sub a Wet ruimtelijke ordening (Spatial Planning Law). In practice, it regularly happens that the costs recovered in a private law agreement are higher than the costs that can be recovered under public law. Nevertheless, a private law agreement is concluded in nearly all cases in the Netherlands, mainly because the public law route is a time-consuming, detailed, and expensive process, which can cause project delays. Despite the fact that a private law agreement requires consensus, negotiation is often hardly possible in practice. Many Dutch municipalities have a standard policy in which the developer obligations are laid down. However, this ensures that the link between some of the NDOs and the development in question is often hard to find in practice, which creates non-transparency and often leads to resistance among developers.

3.3. Connection: What Is the Spatial Limit of "Connection" between Obligation and Development (e.g., Off-Site Costs)?

3.3.1. Description of the Problem (Netherlands)

Dutch municipalities have relied, since the rebuilding and expansion of cities directly after the Second World War, for a long time on active land policy: municipalities buy land meant for development, reparcel the land into building plots, provide public infrastructure, and sell serviced building plots mainly to private developers and housing associations. The net income from buying and selling these building plots was used to cover both on-site and off-site infrastructure costs [31]. As a consequence, municipalities usually did not have to make use of developer obligations to capture land value (the price private developers paid for a serviced building plot, based on residual valuation techniques, served as the value capture mechanism). Three (unrelated) events in and around 2008, however, caused a dramatic change in municipal land policies and the use of developer obligations [4,31,32]. First, with the implementation of the long-expected new Spatial Planning Act in 2008 for the first time a legal basis was introduced for the use of developer obligations, to be used in case municipalities do not make use of active land policy. Second,

the global financial and economic crisis caused many municipalities deep financial trouble, as the direct consequence of their active land policies: while they had invested up-front substantial amounts of money in land acquisitions and public infrastructure provisions, the crisis caused a dramatic decrease in demand for new housing and consequently of private developers' demand for serviced building plots. Municipalities lost a lot of money on their development projects, became much more risk-averse in their land management strategies [33], and moved away from active land policy. Third, in the same time period new residential development shifted from a dominant greenfield development model towards a grey-/brownfield development model, with the latter more complex and riskier in terms of active land policy.

A recent survey shows that active land policy is still used, but the majority of urban development plans is now private developer-led and uses DOs as a *cost recovery mechanism* for funding of both the basic package of on-site site-specific public infrastructure and off-site larger public infrastructure [34]. While overall the implementation of the DO regulation (that had been introduced in the 2008 Spatial Planning Act) went rather smoothly [35], there is still debate about the legitimacy and calculation of (the size of) DOs for off-site large infrastructure costs [4]. These off-site infrastructure costs exceed the basic package of on-site, site-specific local infrastructure and may include "roads, parks, green areas, social facilities, affordable housing, landscaping and sustainability measures that serve wider areas, i.e., more than one specific development site" ([4], p. 769). To explore the nature of that debate, we conducted 18 interviews with both local government and private sector representatives, discussing the motivations to charge these particular DOs, the supporting planning policies, the calculation methods in use, the room for negotiation, and the size of the DOs.

According to Article 6.13 of the Planning law, municipalities are obliged to charge all relevant public infrastructure costs related to a building plan to the developer. The DO regulation is based on a two-step approach. At first, when a developer comes with a development initiative, municipalities must try to negotiate an agreement with the developer on the size of their contribution to on-site and off-site public infrastructure, signed in a private-law contract as described earlier. If an agreement cannot be reached, the municipality must define a NNDO, to be charged to the developer, based on a public-law "Development Contributions Plan" (*Exploitatieplan)*. If the developer refuses to pay, he will be denied a building permit. The 2008 Act (in combination with the 2008 Spatial Planning Decree) regulates in detail how to calculate the costs of site-specific on-site public infrastructure that can be charged compulsorily, but it is rather vague in detailing off-site large infrastructure costs [4]. As we mentioned in Section 3.1.3, off-site large infrastructure costs can be divided into: (1) infrastructural provisions that benefit multiple areas (*bovenwijkse voorzieningen*; compulsory), (2) cost equalisation (*bovenplanse kosten/verevening*; compulsory), and (3) 'voluntary' contributions to spatial developments (*bijdragen ruimtelijke ontwikkelingen*; not compulsory) (Table 2). As a consequence, all of the on-site public infrastructure costs can be compulsory (if no voluntary agreement can be reached), while only part of the off-site public infrastructure costs can be compulsory. In practice, in around 95% of all development plans, voluntary developer contributions are agreed on, both for on-site and off-site infrastructure costs [35]. However, it is generally assumed that the detail of the calculation of compulsory on-site and off-site costs to a certain extent 'regulates' the size of the voluntary developer contributions to infrastructure costs (they serve as a reference value).

In practice, problems often arise with the substantiation for what the DOs will be spent on (applies to all three categories), as a result of which the link between the development in question and the DOs is not always clear. Many Dutch municipalities have a fixed policy in which the level of the DOs is regulated, from the perspective of equal treatment for all developers. Most of the municipal respondents indicate that the policy is a council framework they cannot simply deviate from, which seems to be at odds with the negotiable nature of NDOs in private law agreements. The interviews also show that it is often the

town council who decides on what is realised with the revenues from DOs, as long as these possible expenses are mentioned in the municipal vision document ('*Structuurvisie*'). As a result, civil servants often cannot make any commitments to developers about what the DOs will be spent on, making the substantiation of the link between the development and the DOs opaque and arbitrary for developers.

Table 2. Categories of DOs for off-site infrastructure costs [36].

	Infrastructural provisions that benefit multiple areas ('*bovenwijkse voorziening*')	**Equalization** ('*bovenplanse kosten*')	**Voluntary contributions to spatial developments** ('*bijdragen ruimtelijke ontwikkeling*')
Legal basis	Article 6.2.5 Bro	Article 6.13 paragraph 7 Wro	Article 6.24 paragraph 1 a Wro
Description	No definition of 'bovenwijks'. Only an exhaustive list of the provisions in article 6.2.5 Bro.	No definition, only an explanation of a motion from the House of Representatives: equalization between exploitation of areas.	No definition, a description in the explanation of the law proposal and parliamentary treatment: socially important functions such as infrastructure, nature, water storage and cultural facilities.
Formal requirement	None. Description coherence between provision and area is obvious.	Vision document: description of any functional or spatial consistency.	Vision document: description coherence
Enforceable under public law	Yes	Yes	No

In addition, problems also arise with the third category of 'voluntary' developer contributions to spatial developments. The possibility of the compulsory "fall-back option" (in case municipality and developer cannot agree on the size of the DO) is absent and transparency is lacking since there is no reference possible to compulsory charges to define the size of them.

The (potential) transparency problems are reflected in the interviews. Municipalities use different motivations for why they charge off-site infrastructure DOs (sometimes a clear functional relation with the development project; in other cases, this relation is absent), the policies that support the DOs vary (level of detail, regular updates or not), different calculation methods are used (standard amount per dwelling, amount based on dwelling size, amount based on price category, and amount based on percentage of market value), the room for negotiation varies (not at all versus flexibility in size of DOs depending on financial feasibility and/or market conditions) and, finally, the size of these off-site infrastructure DOs varies substantially among municipalities (from EUR 3000 to 10,000 per dwelling and different amounts per m^2 for other types of real estate). While some municipalities have introduced guidelines for this in a transparent way, others have not. When municipalities require these off-site infrastructure DOs, they must refer to a policy document that justifies the necessity of this off-site infrastructure (but the exact content of such a policy document is open to municipalities' own interpretation and the DO size is in theory still negotiable). Previous research shows that municipalities indeed use different interpretations with regard to the three categories of off-site large infrastructure costs, based on the fact that the criteria benefit, causality, and proportionality can be understood in different ways [36].

Private developers, as may be expected, complain about the lack of transparency, predictability, detail, and comprehensibility of the policies underlying the DOs for off-site large infrastructure costs. What is perhaps surprising, however, is that this does not seem to lead to many conflicts over off-site infrastructure DOs. The interviewees provide two possible explanations for this. The costs of delay when a public-law "Development Contributions Plan" (*Exploitatieplan)* is made, which takes a lot of time, are often higher than the additional DOs that a municipality asks for under private law. In order to maintain progress in the projects, the NDOs are often paid. On the other hand, private developers

often find themselves in a weak position to negotiate. They have already invested up-front in buying the land and cannot afford to be refused a building permit. Moreover, they prefer to maintain good relations with the municipality to increase their chances to be granted future additional development projects.

In the context of the spatial limits of "connection" between obligation and development, the lawsuit of Oldebroek (2019) is a well-known example in the Netherlands. This case concerned a desired change of function by the owner for his holiday home to residential use. As a result, the municipality requested a contribution in the private-law agreement to compensate for the loss of the recreational destination by realising spatial quality somewhere else in the municipality. The Administrative Jurisdiction Division of the Council of State ('Raad van State') judged mid-2019 that the municipal council of Oldebroek could reasonably refuse the change of function desired by the owner, because this owner has not concluded a private law agreement that extends to pay the requested developer obligations as described above. This court decision has called into question the limits of NDOs in the Netherlands.

3.3.2. German Perspective

In general, negotiated developer obligations offer more options for public value capture than compulsory regulations; otherwise, the contracts would degenerate into a superfluous surrogate of the compulsory regulations.

Legal restrictions are given by article 11 of the German Statutory Code on Construction and Building (cf. Section 3.2.2). "Contracts to cover the follow-up costs" can be used to cover the costs of the municipality (not another territorial authority) in the past or in the future which are condition or consequence of the development of the area (e.g., infrastructure in the broader sense). For this reason, off-site infrastructure of the development is restricted to the area of the municipality. Important is the factual connection between development and off-site infrastructure (condition or consequence of the development). For this reason, the spatial limits of developer obligations depend on causality. This causality must be explicitly proven. A general dwelling levy is therefore inadmissible. Example:

> *A municipality develops a legally binding land-use plan for an area belonging to an investor, which allows for the construction of 1000 residential units. The municipality makes the implementation of the plan dependent on the investor bearing the costs for the extension of the kindergarten by 25 places.*

In order to assess the causality, it must be determined statistically how many kindergarten places are necessary to cover the demand for the new residential units. The structure of the population groups to be settled is of decisive importance. If the demand triggered by the new housing units is not covered by the existing places, the kindergarten places are considered a prerequisite or consequence of the project. If the planned expansion of the kindergarten is higher than the demand resulting from the project, the costs are to be split accordingly. A purely arithmetical allocation of partial costs of social facilities must be made, if an allocation to a definable subarea is not successful, but proof of causality by the project can nevertheless be provided. As a distribution standard, which should be disclosed in the contracts, the standards recognised from municipal contribution law are suitable. These include, as in the Netherlands, a standard amount per residential unit [29]. For these reasons, provision of infrastructure serving multiple areas and cost equalisation is generally possible, as long as the liabilities in total do not exceed 2/3 of the land value increase resulting from the development (cf. proportionality criterion in Section 3.1.1).

Voluntary contributions to spatial developments are not regulated by law. However, case law indicates that such regulations are possible within the framework of so-called limping exchange agreements, provided that the objectives according to article 1 BauGB are pursued (cf. Section 3.2.2). This should also apply to off-site projects. However, there remains a risk that such contract contents can be challenged in court.

In Germany, many municipalities established so-called "building land models (Baulandmodelle)" to increase the transparency and predictability of developer obligations. In these

resolutions, the municipal councils declare that they will only decide on such legally binding land-use plans that are preceded by a contract with landowners or developers on the use of increased land values for public benefit purposes. The regulations should contain the cost factors (e.g., technical and social infrastructure and provision of affordable housing) and make specifications on the maximum value capture. This declaration increases the transparency and ensures equal treatment of all those involved on the local level.

3.3.3. Belgian Perspective

A project affects not only its immediate surroundings but also the wider environment off-site. Improving public services, green spaces, or public infrastructure may be necessary at a greater distance as a result of a project. However, the imposition of off-site burdens is more constrained than on-site from a Belgian perspective.

When imposing on-site burdens, the link with the project is obvious and the public burdens can be immediately realised by the developer within the development. In other words, two basic conditions are met with on-site DOs: (1) there is sufficient proximity between the project and the burdens and (2) the developer is able to realise the DOs himself. According to the Flemish Planning Act, burdens should be realised by the developer (Omgevingsvergunningsdecreet, art. 76), but this is obviously difficult if the DO is located off-site and the developer is not the owner of the site.

The proximity requirement ('nabijheidsvereiste') is implicitly embedded in the current regulation, but since this aspect has regularly led to debate in court, the proximity principle is now explicitly mentioned in the new draft decree which is yet to be approved (Amendement Instrumentendecreet, art. 5). However, it is not clear to what spatial extent the proximity requirement is met; are off-site burdens in the neighbourhood, within the urban tissue, or the municipal limits still proximate? This interpretation needs to be assessed case by case. Remarkably the regulation of the neighbouring Walloon region ('Code du Développement Territorial'—'CoDT') offers more possibilities for imposing off-site burdens then the Flemish decree.

Consequently, the local authorities are more likely to impose levies to bear the off-site consequences of a project. On-site burdens that cannot be realised by the developer can be converted into retribution and added to the off-site levy. In that way, municipalities are allowed to combine multiple contributions to finance large scale public infrastructure or green space. This may be appropriate to finance, for example, compensatory natural conservation or afforestation projects at the outskirts of the urban extent. However, the government's designation of the private fees must also meet the proximity requirement. As mentioned, it is not clear in what range the proximity requirement is met, but in practice the investment should at least remain within the municipal territory.

4. Discussion

In this section, we will discuss the different views on the research questions (cf. Section 1) to derive recommendations on the proportionality, causality, and connection of value capture.

In Germany, it is generally accepted to capture two-thirds of the land value increase to cover development-related expenses. In Belgium, both the Flemish and the Walloon regional governments levy a tax on planning gains when rezoning nonbuildable to buildable land. The current levies amount from 1 to 30% of the so-called 'presumed added value' on land, but an increase to a limit of 50% is being considered. Furthermore, the Flemish municipalities have the option to establish a levy for rezoning buildable land to a higher density. Public charges on the development of projects are allowed in all Belgian regions. Cities and municipalities impose public burdens on development from a public cost approach. Generally, developers have to pay a fee per developed m^2 residential floor space. The concept of proportionality as it is used in the Dutch legal system has a different meaning than in the German and Belgian context. Proportionality refers here to the costs of off-site infrastructure that can be charged to a developer that is developing a building

location. If this off-site infrastructure benefits other living areas as well (new and existing), only a proportional part of these infrastructure costs can be charged to the developer (assuming that the remaining costs will be charged to other developers that benefit or will be covered by alternative funding). All of the on-site public infrastructure costs can be charged to developers compulsorily, as long as they belong to the type of costs that have been specified in the law and as long as the criteria of proportionality, profit, and accountability can be substantiated. In theory, all of the on-site public infrastructure costs can be charged and the entire attributable off-site public infrastructure costs as well, as long as the financial feasibility of the building plan is not at stake.

The German method requires extensive valuation and market expertise within the administration. On the other hand, the German system ensures in theory a fairer distribution of burdens, as these are based on profit. In contrast, a calculation per m^2 residential floor space favours investors in regions with high property prices.

The cost coverage is capped in Germany (currently established at 67% of the land value increase), while the regulation of the Netherlands allows (in theory) a value capture of 100%. In Belgium, there is no check on profitability. An important requirement for value capture is causality: the factual connection between development and public burden. Public infrastructure such as roads and sewage are obvious technical obligations. Furthermore, it is generally possible to implement green compensation. Further obligations are handled differently in Belgian regions. The Flemish decree on social and affordable housing only lasted four years. From 2009 to 2013, an obligation of 20% social and affordable housing was implemented. The decree was annulled by the European Court of Justice. Even though the European ruling did not question the legitimacy of the social development obligations, the social housing chapter was cancelled on procedural grounds. On the other hand, contracts may include regulations of public infrastructure such as green spaces, playgrounds, sports infrastructure, public parking, service centres, schools, kindergartens, or affordable housing pursuant to the ordinance on public value capture of Antwerp from 2018. In the Netherlands, both the size of developer obligations and the type of amenities and public costs that can be "covered" by non-negotiable developer obligations are defined in the Spatial Planning Law and Decree. Other types of costs that have not been specified in these legal norms cannot be charged under public law. However, private law agreements occur, in particular, in the Netherlands. In these private agreements, a higher amount of costs can be recovered than under public law, and the criteria of proportionality, profit, and accountability do not apply in these private contracts. In practice, there are mainly problems with the elaboration of NDOs in the Netherlands. Dutch municipalities often make a standard policy for DOs, with fixed amounts for certain types of property, fixed percentages, or standard square metre prices. Civil servants do not always have the authority to deviate from this. In addition, it is often the municipal council who decides where to use the expenditures of the DOs, as long as there is a link with the municipal vision document ('Structuurvisie'). As a result, the causality between a development and the requested DOs can often not be demonstrated or substantiated, which leads to non-transparency and feelings of arbitrariness for developers in practice. A possible solution would be to make the substantiation of the criteria profit, accountability, and proportionality also mandatory in private law agreements in the Netherlands.

In Germany, there generally has to be a strict objective connection between the obligation of the private contractual partner and the urban development. The provision of affordable housing and the realisation of ecological compensation are explicitly allowed according to article 11 of the German Statutory Code on Construction and Building (BauGB). This article was introduced after German reunification in order to clarify the legal content of developer obligations from a legislative point of view. This should reduce the uncertainty in dealing with these contracts. On the other hand, so-called "limping exchange agreements (hinkende Austauschverträge)" have become established through case law. These agreements are concluded on the basis of mutual interest. The landowner hopes to preserve

a plot of land that is ready for construction and has increased in value, and the municipality pursues an objective covered by article 1 BauGB (defining tasks of urban planning).

The question of the spatial limits of developer obligation is interwoven with causality. In the Netherlands, the use of DOs has only become common practice from around 2008. In this year a new planning law was implemented, offering a legal basis for DOs. Moreover, after 2008, most Dutch municipalities stopped active land policies because of the associated risks (and then relied on DOs as an alternative way of covering the costs of public infrastructure). There is still debate about the legitimacy and calculation of DOs for off-site large infrastructure costs serving wider areas, i.e., more than one specific development site. One of the biggest problems is "voluntary" contributions to spatial developments. The handling varies substantially among municipalities, which results in unequal treatment of developers and a lack of transparency.

In Germany, off-site infrastructure can be regulated by DOs as long as there is a factual connection between development and off-site infrastructure (condition or consequence of the development) and the infrastructure is located within the boundaries of the municipality. Costs can also be split between different areas. However, the maximum share of value capture in total is 2/3 of the land value increase resulting from the development. Case law indicates that voluntary contributions to spatial developments are possible within the framework of limping exchange agreements, provided that objectives according to article 1 BauGB are pursued. This should also apply to off-site projects. However, there remains a risk that such contract contents can be challenged in court. Municipal "building land models (Baulandmodelle)" increase the transparency and predictability of developer obligations and ensure equal treatment of all those involved. There are regional disparities concerning this topic in Belgium. According to the Flemish Planning Act, burdens should be realised by the developer and they should meet the proximity requirement. However, it is not clear to what spatial extent the proximity requirement is met. This interpretation needs to be assessed case by case, but in practice the investment should at least remain within the municipal territory. Remarkably, the regulation of the neighbouring Walloon region offers more possibilities for imposing off-site burdens then the Flemish decree. Municipalities are allowed to combine multiple contributions to finance large scale public infrastructure or green space.

Finally, we would like to offer some recommendations for policymakers and the establishment of NDOs based on our findings. The calculation of DOs per m^2 residential floor space requires much less effort, but contains no reference to profitability. In contrast, the German model increases acceptance and also serves as proof of legitimacy. This reduces resistance to the establishment of NDOs and also the risk of legal disputes. The return of the development including buildings for proportionality check is accompanied by various assumptions and uncertainties in the calculations. Land value gains and returns from constructions should be treated separately. The profit margin obtained on the design, construction, and commercialisation of a project, and the risks that come along with this, is largely due to the contributions of the developer. A different approach to the increase in value obtained in construction than that obtained on land is therefore needed. The capturing of land value increases in the amount of 67% is established in practice and jurisprudence in Germany. It might be an option to increase this share. However, both for reasons of appropriateness and for practical reasons, the developer should retain part of the profit as an investment incentive. The additional return from the constructions can be calculated from the difference between the total return and the land value gains. The captured percentage rate should be considerably lower in order to avoid the situation where the factual earnings and investments lead to inadequacy. In addition, the investors bear a considerably greater risk, since they receive a comparatively small return for much larger investments. Taking into account the high standard deviation of the estimated return and the risk bonus for the investor, a public value capture in the range of 20% seems appropriate. However, in this case, there are major imponderables that can be avoided by limiting public value capture to land values.

For the establishment of NDOs, it is advisable to regulate explicitly permitted contract contents in a law (cf. Germany and Netherlands). This should be an open list, primarily for the purpose of clarification. Here, the spatial and factual limits of connection could also be specified (e.g., restriction to the municipal area and urban development objectives according to national legislation). Thus, the handling of contracts is facilitated, but the flexibility for local regulations is maintained to accommodate changing needs for public services or changing public perceptions about what services merit public support (cf. Section 1). For example, the increasing importance of climate change responses may lead to a greater focus on green space provision. This is important to enable the solution of specific local problems. Furthermore, the feasibility of value capture depends above all on local economic conditions (especially land values). At the municipal level, a decision in principle on value capture can contribute to transparency and equal treatment of stakeholders.

There are a lot of uncertainties concerning the handling of off-site infrastructure and there is no convincing solution for this problem in any of the countries involved in this study. Exchange agreements can in principle be a solution approach, but the legitimate interests of the municipalities must be defined in detail. However, there is a need for further research to solve this problem.

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