

# **The Influence of Planning Culture on the Settlement of Anterior Agreements in The Netherlands**

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By Rover Temming

**Radboud University**



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**The Influence of Planning Culture on the Settlement of Anterior Agreements in The Netherlands**

Author:

**Rover M. Temming, S4451198**

Supervisor Radboud University:

**Prof. Dr. Erwin van der Krabben**

Internship supervisor:

**Erik De Leve**

**stec  
groep**

Date:

**14-1-2021**

Correspondence:

**rover.temming@hotmail.nl**

# Abstract

The Dutch public value capture practice has long taken place in the form of active land development and cost-recovery through the sale of land. Nowadays municipalities rely mostly on the anterior agreement to recover costs. Theoretically, the anterior agreement offers full discretionary freedom to municipalities to recover costs how they see fit. Simultaneously, literature as well as practice suggests that municipalities are restricted with regards to how they use the anterior agreement. This calls for an investigation into whether municipal discretion influences the outcome of PVC negotiations with the anterior agreement. The Culturalized Planning Model developed by Knieling & Othengrafen (2015) provides a theoretical/conceptual model that describes how discretionary freedom is used. Drawing on this model, this research hypothesizes a relationship between planning culture and the value and coverage of developer obligations secured with the anterior agreement.

Together with experts from Stec Groep a survey has been designed and conducted to provide data for statistical analysis of the variables under study. With a response of about 73 Dutch municipalities, of which 50 could provide data about planning culture and cost-recovery sums in 2020, insight has been obtained in the relationship between planning culture and the practice of PVC in The Netherlands. Statistical analysis has not found a significant relationship between planning culture and the value and coverage of developer obligations in The Netherlands. The conclusion is that in spite of the freedom that the anterior agreement offers, municipalities are not in a position to act as they wish when recovering costs. This finding has implications for the effectiveness of the anterior agreement as a PVC tool and might contribute to the discussion regarding how municipalities can reduce their deficits in land and area exploitations. With respect to statistical robustness further research should investigate the hypothesized relationship with a larger and more accurate dataset.

# Preface

I would like to thank Erwin van der Krabben, Erik de Leve, Esther Geuting, Tiny Bus, Niek van der Heijden, Demetrio Muñoz-Gielen, Barbara Bakker-Kramer and Paul Maas for their input on this master thesis. In particular I would like to thank Chantal van Rooijen for offering me the opportunity to present various findings of the survey in a meeting of the association of Dutch municipalities (VNG). Lastly, I would like to thank everybody at Stec Group, for their warmth and enthusiasm during my internship.

And of course, special thanks go out to my friends and family.

This master thesis is the culmination of my academic studies. I am glad to have come this far and I am looking forward to what comes next. I hope this thesis may be of interest and value to you. Feel free to share it with friends, colleagues and whoever might be interested. The housing and property market interests me greatly and I am curious to see what will happen in the coming years, especially with regards to legislation and the distribution of power and rights between public authorities and private bodies.

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# Chapter One: Introduction

The Dutch spatial planning landscape has changed dramatically over the past two decades. Pre-2008 The Netherlands was known as a “Planners Paradise”, mostly because Dutch municipalities could shape the built environment to great extent. They engaged in active land policy and strived towards integrated and comprehensive development (Buitelaar & Bregman, 2016). However, the economic crisis in 2008 has shown that this planning system is a “tightly coupled system” in a negative sense and that disturbances in one end could influence the system in different places. Altogether the weak development and property market in 2008 showed that municipalities took to many risks in area development which led to large financial losses and unfinished projects.

Introduction of the new Spatial Planning Act in 2008 (Wro 2008) has increased the possibilities for municipalities to ensure a high spatial quality without having to take too much risks and responsibilities in the spatial development process. In other words, regulations and instruments were introduced that improved municipal control over developments (and thus over private developers) without having to actively participate in the land development process. That said, the total amount of control over development has been reduced because not owning land weakens the negotiating position.

Municipalities’ approach to specific planning issues, in terms of how they position themselves in the planning system and what norms and values guide their actions, is in this thesis defined as planning culture (see Othengrafen, 2014 for planning culture). The system change that took effect in 2008 is undeniably based on practical considerations but inherently also says something about changing values in the planning system. The figure below demonstrates the differences between the old and new system of area development in The Netherlands. The old system is positioned on the left side and is called integrated urban development, whereas the new system on the right is called organic urban development.

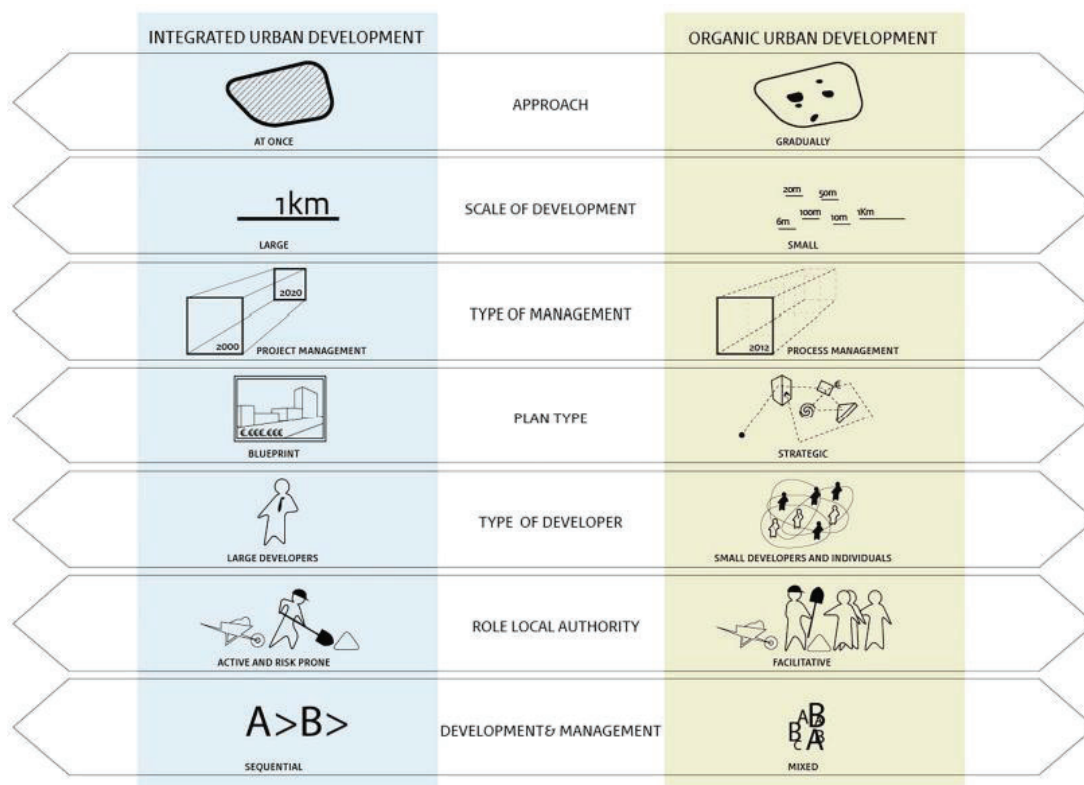


Figure 1. Integrated and organic urban development. Taken from Buitelaar & Bregman (2016, p. 1288).



The main shift in development style is from a top-down, blueprint kind of planning to a more bottom-up, participatory kind of planning. This reflects a change in attitude towards the financial risks spatial planners should take and opens up new kinds of responsibility for actors involved. Whereas Figure 1 displays a clear dichotomy, it should rather be interpreted as a spectrum. Buitelaar in Buitelaar & Bregmans (2016, p. 1291) state that: “it is likely that in the light of uncertain demographic and economic prospects, the importance of organic development will grow at the expense of integrated development”. A shift towards a more organic development system has all kinds of consequences for development procedures and the resulting spatial quality. Moreover, it alters the financial balance of incomes and expenditures for both developer and municipalities drastically.

One of the most prominent and understudied changes in the spatial planning system is the practice of public value capture (PVC) (Muñoz-Gielen in Muñoz-Gielen & van der Krabben, 2018, p. 97). In the old system, municipalities often acquired land before development took place, in order to install services and infrastructure. The costs made to provide services and infrastructure could be recovered through the sale of the land to the developer. This type of arrangement is known as a land-allocation agreement. However, the financial crisis has shown that this approach comes with a high risk because if development is postponed or canceled the owner of the land will sustain financial losses.

The new legislation introduced in 2008 offered municipalities more options to secure cost-recovery in the form of contracts. There was a public-law instrument that could be used to this end, called the Exploitatieplan, which contained non-negotiable developer obligations (N-NDO). The scope of this N-NDO has been widened with the Spatial Planning Act 2008 and thus became a more attractive alternative to land-allocation agreements because they posed less financial risks for municipalities. Cost-recovery contracts however are inherently different than land-allocation agreements because these contracts are only necessary in case municipalities do not own the land. That said, the land held by municipalities has reduced by 36% from 2012 until 2018 (Deloitte, 2020). This indicates a shift in attitude, away from active land policy and its financial risks. Although the housing production has also declined, the relative use of developer obligation contracts has increased ([gebiedsontwikkeling.nu](http://gebiedsontwikkeling.nu), 2021).

In addition to the Exploitatieplan, a private-law contract called the Anterieure overeenkomst (anterior agreement) was introduced in 2008. This contract contains negotiable developer obligations (NDO's) and is a voluntary cost-recovery settlement between municipalities and developers. Research has found that the anterior agreement has become the most favorable PVC practice among municipalities and that the Exploitatieplan is barely used anymore (PBL, 2012). However, the use of the anterior agreement is to some extent still related to the Exploitatieplan, as municipalities can force cost-recovery with the Exploitatieplan if a voluntary agreement is not reached.

Although the new legislation that was introduced in the 2008 Spatial Planning Act poses less financial risks on municipalities, other issues have arisen. First of all the effectiveness of NDO's as opposed to land-allocation agreements is questionable, and second the legitimacy of the use of the anterior agreement is questionable. Legitimacy refers to: “consistent, transparent and predictable policy activities” (Woestenburg et al., 2018, p. 804). Whereas the sales of publicly owned land are clearly documented, the contents of private-law agreements such as the anterior agreement are not (Muñoz-Gielen in Muñoz-Gielen & van der Krabben, 2018). It is thus questionable how consistent the practice of negotiating DO's with the anterior agreement is, and furthermore municipalities often lack relevant policy to substantiate their cost-recovery practices (Muñoz-Gielen & Lenferink, 2018).

Above concerns are not entirely unexpected, because the anterior agreement is barely regulated, i.e. its main goal is to secure cost-recovery regardless of how it is done, municipalities can use it as they see fit. That said, planning cultures may play a big role in determining how agreements are settled, as opposed to the use of other instruments which require specific calculations that are guided by law. Either way, Dutch spatial planning history has proven that municipalities are pragmatic and will use



instruments in ways that were not intended by the lawmaker(s). For instance, with regards to documents outlining permitted land-uses, known as land-use plans: “in actual practice, land-use plans were primarily used – afterwards – for registering already existing development initiatives, and as a formal basis for issuing the building permits” (Buitelaar & Sorel, 2010, p. 987). In contrast, land-use plans were intended to guide development proposals rather than follow. Another example is that Dutch municipalities often chose to provide exemptions from land-use plans rather than modifying land-use plans according to the developments. This rendered many land-use plans obsolete, which in turn provided municipalities with power because they could decide time and again whether to provide exemptions for new developments (Buitelaar & Sorel, 2010).

According to Buitelaar & Sorel in Muñoz-Gielen & van der Krabben (2018, p. 94): “This behaviour is sometimes explained as the consequence of Dutch municipalities pursuing public control of urban development more than in other countries”. This behavior can be interpreted as trading off legitimacy for pragmatism, which given these three examples, seems a cultural trait of Dutch municipalities. The pragmatic approach and propensity to take risks seem (or seemed to be) important traits of Dutch municipalities.

Although little is known about the contents of anterior agreements in practice, it can be expected that due to the high level of discretionary freedom, the settlement of anterior agreements is influenced by the way Dutch planning officers value legitimacy and risk and incorporate these traits in their behavior. This research investigates the relationship between various types of planning cultures, defined by risk and legitimacy, and the scope of PVC with the anterior agreement.

## Main research question

- What is the relationship between municipal planning culture and the amount of developer obligations obtained with the anterior agreement?

## Sub-questions

- What is planning culture?
- What are developer obligations and how are they regulated?
- How much developer obligations are obtained with the anterior agreement?

## Scientific relevance

The Dutch planning landscape and institutions have changed in the last 15 years. Along with the system change municipalities have started favoring a more organic land-development approach over a more integrated, comprehensive and top-down approach. This indicates a shift in planning culture, i.e. changing norms and values within municipalities regarding matters of spatial planning. The values have shifted towards a more risk-averse approach and developing parties have become more dominant actors.

Only recently has the concept of planning culture been linked to the value and scope of developer obligations. Dunning et al. (2019) are one of the first to establish this relationship, in the UK. The main driver for an expected relationship between planning culture and PVC has been the low level of influence of local market conditions on the scope of PVC. Given the high degree of discretion in English municipalities, it was expected that planning culture could exert a substantial influence on the amount of PVC and this has turned out to be true.

This relationship has not been studied before in The Netherlands, which might be due to a lack of insight in outcomes of PVC (the contents of anterior agreements are almost never made public) and a lack of theoretical connections between planning culture and PVC. Given the introduction of a PVC tool that offers full discretion, the anterior agreement, it can be expected that planning culture influences the amount of PVC in municipalities. The UK was always known for its high degree of

discretion in planning decision-making, whereas Dutch planning used to be more aimed at legal security (Janssen-Jansen & Woltjer, 2010). However, with the change towards facilitative land policy municipalities have lost their original steering capacities and are now forced to seek this power through other means. This lends credibility to the idea that Dutch municipalities will seek to influence planning when given the freedom to do so, and in this aspect have become similar to the UK.

That said, the UK legislation is aimed at providing discretion, and this has been a regular practice for decades. In The Netherlands, the use of the anterior agreement and decline of active land policy is a relatively new phenomenon and thus the collective experience is limited. In addition, Dutch planners are known to be pragmatic and use legislation and instruments in ways that were not intended by the lawmaker (Buitelaar & Bregman, 2016) which makes that PVC practice is expected to be more unpredictable than in the UK and requires investigation.

A detailed insight in Dutch planning culture and the relationship with PVC will provide a basis for international comparison, for starters between The Netherlands and the UK. Also many countries in the European Union rely on NDO's for PVC, such as Switzerland and Turkey (Muñoz-Gielen & van der Krabben, 2019) and as such providing insight in relationships between planning culture and the value of negotiable developer obligations will enable these countries to reflect on their practice more accurately. Moreover, reflecting on the use of NDO's in The Netherlands will render a better insight into its efficiency and effectiveness with regard to the discretion it provides. Perhaps a more regulated N-NDO would be preferable in the Dutch PVC context, but without any information about how municipalities use NDO's this insight remains uncovered.

## Societal relevance

The Dutch area and property development market is currently in crisis. First, there is a shortage of about a million houses projected until 2030. Second, the annual housing production rates are under the necessary rate to achieve this goal. This might be explained by the current material and personnel shortages in the construction sector. Also, new policy has reduced the allowed amount of nitrogen pollution, which has forced construction to stagnate.

Altogether in the past two years the housing prices have increased with 28% (Rabobank.nl, 2021). This means that the price of the average dwelling has increased by about €50.000 in one year. The purchase of a new house has thus become unaffordable for a lot of people, and reflects a shortage of housing for low and middle income households in The Netherlands. As a result, young adults choose to stay at their parents' house and postpone starting a family, for instance (kennishuboverijssel.nl, 2021). This has severe consequences for the demography and economy in the short and long run.

Not only citizens suffer financial consequences of the critical state of the property market, but also municipalities suffer large losses. Rebel group (2021) has been commissioned by the ministry of interior affairs to investigate the municipal deficit in housing projects. This turned out to be a deficit of € -12.600 per dwelling. Additionally, there are costs that cannot be attributed to specific dwellings but contribute another € -14.900 to the deficit, adding up to € -27.500 per dwelling (Rebel, 2021). It is expected that this amount already accounts for developer obligations obtained by municipalities. Although the high amount of expenditures by municipalities is likely to some degree a form of subsidization, it can also be expected that a higher cost-recovery would reduce the municipal deficit per dwelling.

Last but not least the financial feasibility of developments for developers is under stress. They can develop less due to material and personnel constraints and municipal procedures slow down the development process (vastgoedmarkt.nl, 2021), affecting overall financial feasibility of projects.

The problems that occur on local levels (especially regarding public budgets) are often compensated by the state. For instance, there is a program called "Woningbouwimpuls" (rvo.nl, 2022) which

consists of funding for municipalities to help achieve the national goals regarding housing construction. However, state compensations such as subsidies are not a constructive solution to improve municipal practice. Although building more housing and reducing municipal deficits are different problems, they might be interrelated and a more efficient cost-recovery practice might make developments more feasible, requiring less subsidization. As such, it is questionable whether state subsidization is the best option to solve current housing (construction) problems. However, until now it is unknown how municipalities themselves negotiate cost-recovery agreements, which warrants further investigation.

Altogether the current financial situation in the property and area development market calls for investigation of all financial procedures that stand in the way of development. This thesis will contribute to this goal by delivering information about the scope and value of developer obligations secured with the anterior agreement. The results might benefit policymakers and practitioners in municipalities and higher government authorities. Additionally, information provided by this research could help determine what factors lead to the current PVC practices. The results of this research will indicate whether municipal planning cultures play a role in securing developer obligations and the scope and value thereof. This might yield an understanding of how the current legal and institutional framework is used by municipalities and whether solutions toward improving cost-recovery can be found in changing municipal behavior or altering PVC instruments or a combination of both.

## Outline of this thesis

The following chapter (Chapter Two: Theoretical Framework) deals with the theoretical concepts that are relevant to this thesis. Various theories and authors on the topics of planning culture, discretion and public value capture are discussed and a choice is made for a particular theoretical framework that guides the research. This results in a visualized conceptual model.

The third chapter (Chapter Three: Research Strategy) discusses how the hypotheses can be tested, i.e. what kind of data need to be obtained and how the data should be analyzed in order to be able to confirm or reject the theoretical expectations. Various methods will be discussed and special attention will be paid to limits of the research method in terms of internal and external validity.

The next chapter (Chapter Four: Analysis) documents the procedure that has been followed to perform the analysis (as was set out in the research strategy) and it displays the results of the analysis. It starts off however with a specification of the Dutch judicial framework of PVC is displayed to give a detailed insight in the context of the results.

The fifth chapter (Chapter Five: Conclusion) emphasizes on the theoretical relationships that were laid out in the theoretical framework. Especially the answers to the research questions and sub-questions are interpreted and described. This section ultimately concludes the outcome of this research.

The last chapter (Chapter Six: Discussion) discusses the strengths and weaknesses of the research. The purpose of this section is to provide readers with an understanding of the shortcomings of this research and to share possibly useful insights for further research.

## Chapter Two: Theoretical Framework

This chapter examines various definitions and theories that are often associated with the variables under study. Also choices are made and substantiated with regards to which definitions and theories are used in this thesis. The first topic that will be addressed and introduced is public value capture. After, the concept of discretion and its ties with PVC will be elaborated. Third, planning culture theory will be treated and operationalized. The theoretical choices made in this entire section are eventually translated into a particular conceptual model and various hypotheses.

In The Netherlands the most popular PVC tool is the anterior agreement, which contains negotiable developer obligations. As such, the contents of these agreements can be influenced by both municipalities and developers. This thesis focuses on how municipalities determine the contents of these agreements, i.e. is their behavior purely instrumental or is decision making also influenced by cultural factors? In order to develop clear expectations about the relationship between planning culture and the outcome of PVC negotiations, this chapter explains and evaluates various theoretical concepts that can help understand the decision making process.

First, an overview of the possibilities of public value capture in The Netherlands is given. It shortly discusses the differences between non-negotiable developer agreements and negotiable developer agreements. Second, the concept of discretion is explained, which is the main feature of negotiable developer agreements. Discretion is also known as freedom to act (within judicial boundaries). Third, planning culture is examined in detail. Planning culture refers to values and attitudes of municipal planners that might influence spatial planning decisions.

Altogether this section provides an insight in how planning culture is related to PVC with the anterior agreement. This renders a conceptual model and various expectations, which are tested in this research.

### Public value capture in The Netherlands

Public value capture refers to recovery of public costs in the broadest sense. This term might refer to for instance, capturing betterment, cost-recovery and value capturing (Muñoz-Gielen & Tasan-Kok, 2010). Various tools are used to recover costs that are made by public bodies, and together they represent the total PVC. The essence of PVC is that investments are made by public bodies, of which the outcomes are (financially) beneficial to other parties, such as developers. Because these investments often do not provide any returns to the public bodies, agreements are made with the beneficiaries to provide compensation to the public body. Although in the context of urban development agreements are the preferred cost-recovery approach, there are also more statutory means to recover costs such as taxes and levies.

It is common to recover costs or capture public value through the negotiation of a contribution, but payment in kind is also acceptable (Muñoz-Gielen & Tasan-Kok, 2010). This means that in some cases public investments or developments are carried out by third parties, to compensate the public expenses beforehand. As such, the most important aspect of cost-recovery is that the beneficiary pays for the gains it has received. Such gains, in practice, might refer to an increase in land- or property values, as a result of municipal investment.

Figure 2. Public value capture explained

Figure 2 provides insight in what public value capture (PVC) is and what drives it. There are various PVC tools available in The Netherlands. In short, a distinction can be made between developer obligations (DO's) and various other tools, among which taxes. As the name implies, DO's target the

developer who profits from municipal investment, whereas other PVC tools exact costs on a wider audience.

Usually these other tools (i.e. taxes and contributions) target existing landowners who benefit financially from municipal investments. For instance, the betterment contribution can be used to exact costs on the residents/owners of an area in which a new road has been constructed. This type of contribution is barely used however, due to concerns about its democratic legitimacy (Muñoz-Gielen in Muñoz-Gielen & van der Krabben, 2019). Other taxes are less specific, such as the *onroerende zaak belasting* (OZB), which is a tax on property owners, to capture value from the increase of property values. Another form of contribution to municipal investments is through payments in kind. In for instance the UK, the amount of social housing is part of DO's, whereas in The Netherlands, the amount of social housing is secured through municipal housing programs, which lay out each year the quantities of different types of housing (price classes and rent vs purchase) that can be built. Although municipal housing programs are not really PVC tools, they do regulate costs and benefits, and in some systems social housing is part of DO's. That said, in general the total value of DO's surpasses the values obtained with the anterior agreement. The amount of social housing could be expressed in a monetary value, as well as the sums obtained through land allocation agreements, posterior agreements, taxes and levies. This thesis however focuses on the value of developer obligations extracted explicitly through anterior agreements.

The only tools that specifically target developers, who are in this context the main beneficiaries municipal infrastructure investments, are DO's. There are various types of DO's in the Dutch toolkit, namely non-negotiable developer obligations (N-NDO's) and negotiable developer obligations (NDO's). In general the choice between using an N-NDO or an NDO or a combination of both depends on a variety of factors. It depends on the country's property rights regimes and development control systems (Muñoz-Gielen & van der Krabben, 2018). Additionally, the way the tools are perceived plays a role as well as how easily these tools can be implemented. Generally, N-NDO's can cause legislative problems or at least require more judicial underpinning to be institutionalized, than NDO's. They are also less sensitive to local market conditions and change thereof.

Dutch municipalities argue that the N-NDO (*Exploitatieplan*) is too complex (PBL, 2012). This is mostly due to the obligatory current value-estimate of the land in exploitation, to be carried out by an independent entity. The chosen valuation method and the consequent estimated land value then become important in determining the amount of contributions which can lead to discussions and friction during the settlement procedure. As such, the regulatory context in The Netherlands causes municipalities to favor NDO's over N-NDO's.

The main NDO that is available in The Netherlands is the *antérieure overeenkomst* (anterior agreement). The anterior agreement is a negotiation-based contract that has no formal requirements regarding its contents. Therefore it offers the possibility to recover more costs than with the *Exploitatieplan* or posterior agreement (which are N-NDO's). PBL (2012) has found that the anterior agreement is by far the most popular PVC tool, and that the *Exploitatieplan* is only used in 3% of the cost-recovery scenarios. The downside of using an NDO such as the anterior agreement is that it creates uncertainty about the scope of obligations (Muñoz-Gielen & Lenferink, 2018) which might have an effect on the settlement of negotiations in The Netherlands. Especially if different planning authorities vary in the amounts and types of costs they recover.

Although the legislation regarding the anterior agreement does not contain any specific requirements, it is said that the *Exploitatieplan* sometimes serves as the backdrop for settling anterior agreements (PBL, 2012). This indicates that municipalities might use similar terminology as in the *Exploitatieplan* to substantiate their goals, and it might even guide some of the contents, but to which extent, if any, is unknown.



Since the main purpose of the anterior agreement is to exact contributions for municipal infrastructure investment, the main indicator of this variable is the monetary sum that is agreed upon between the municipality and the developer. Until now, it is unknown how much costs are recovered through the anterior agreement which makes it difficult to theorize any possible influences on the amount of DO's, other than from a theory of discretionary freedom.

## Discretionary freedom

The main difference between the anterior agreement and the Exploitatieplan, is the degree of discretion these instruments provide to the municipality. According to Merriam-Webster's dictionary (2021) discretion means: "1) individual choice or judgment 2) power of free decision or latitude of choice within certain legal bounds" (Merriam-Webster, 2021). These explanations are in line with the use of discretion in this thesis. Simply put, a tool with lots of formal guidelines (the Exploitatieplan) reduces the amount of variation that can occur in similar contexts. For instance, similar infrastructural works in different areas are subjected to similar calculations for contributions to municipalities. Perhaps the profitability will vary according to the state of the local market, but other than that there are relatively few factors that can influence the sum that ought to be recovered. Being a public-law instrument, this enhances the legitimacy of its use.

The anterior agreements does not have any formal guidelines, which means that there is a lot of room or freedom for discretion. The decision making process that determines the cost-recovery sum for particular projects, is much more a choice of the municipal planning department than a technical exercise. A closer examination of this freedom as defined by Pratchett (2004) provides insight in the nature of this freedom and the possibilities it offers. There are three kinds of freedom:

### *Freedom from*

Freedom from refers to the capacity to make choices within the existing (overarching) legal framework. Especially, this concept zooms in on the freedom that is created by legislation, i.e. in relation to the regulatory framework.

### *Freedom to*

Freedom to refers to the capacity to make choices in a local context. Although this context is shaped by an overarching legal framework, the institutional design and political and social local context are unique and determine the outcomes on local level. In this sense, the concept of "freedom to" zooms in on decision-making in relation to the agency of actors in a local context.

### *Reflection of local identity*

Reflection of local identity refers to the idea that decision-making is an expression of local social and political beliefs rather than a technical legal exercise guided by the boundaries of the law. As such, this concept provides an understanding of how cultural aspects might play a role in decision-making in opposition to a more technical or process-oriented approach to freedom.

In the case of PVC, the anterior agreement grants "freedom from" the regulations that are outlined in the Exploitatieplan. However, the broader legal framework is laid out in the Grondexploitatiewet (article 6.4. of the 2008 Spatial Planning Act) which mainly delineates the purpose of the tool. So to some extent, the freedom is limited to the purpose of cost-recovery. Municipalities have "freedom to" negotiate cost-recovery agreements as they see fit whether or not based on reflections of local identity. That said, the possibility of discretionary action to be a "reflection of local identity" is the essence of any influence that (organizational) culture can have on practice. Whereas organizational culture defines for example how members react to internal and external issues and how they view and value life (Schein, 2004), the focus of this research is on culture within planning bodies. Planning culture is a form of organizational culture, although planning culture more narrowly reflects the way values in

the planning organization influence the outcome of planning decisions, and not so much refers to how members experience the culture of a company.

Planning culture can be summarized as: “a set of values and attitudes shared by planning actors that is learned and sustained through the planning process.” (Li et al., 2020, p. 1120). As such, local identity, in the context of the planning department, is conflated with the concept of planning culture.

## Planning culture

In fact, the development of planning culture theory comes from organizational theory. Schein (2004) developed a model to understand organizational cultures and their outcomes. Three levels, namely: artefacts, espoused beliefs and values, and underlying assumptions, are elements of a culture.

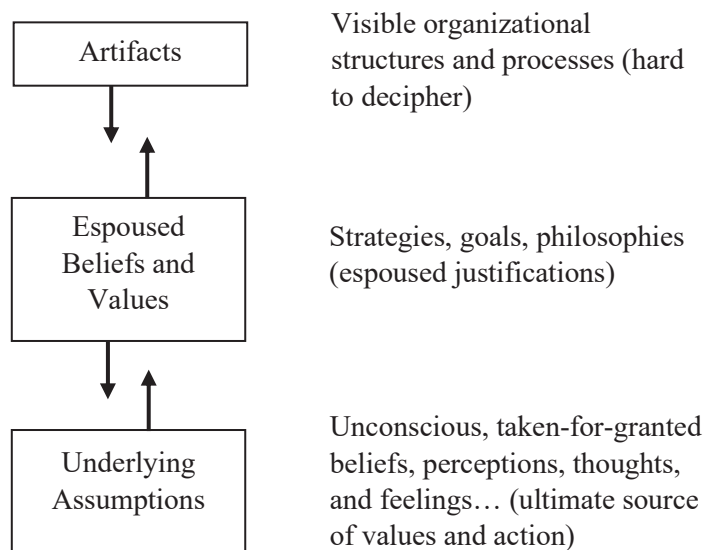


Figure 3. Levels of culture, based on Schein (2004, p. 26).

The directly visible output of an organization belongs to the artefacts. These artefacts somewhat reflect beliefs and values within the organization. However, by themselves they do not produce enough info to come to a clear understanding of beliefs and values. Beliefs and values are less visible than artefacts, as they are more relevant to internal processes. For instance, in planning perhaps beliefs and values are expressed in internal communications, but are less visible when for instance, observing newly constructed infrastructure. Underlying assumptions in turn form the basis of beliefs and values, yet in case they are unconscious they are extremely hard to discern.



Knieling & Othengrafen (2015) have more thoroughly linked Schein's (2004) model to the field of planning, and given examples of the contents of the various levels of observation. Note that Schein's (2004) "Espoused beliefs and values" is replaced by "Planning environment" and that "Underlying assumptions" is replaced by "Societal environment".

<p>"Planning Artefacts</p> <ul style="list-style-type: none"> <li>- Distinctive visible urban structures, consisting of the architecture and physical structure as well as to significant major land use functions;</li> <li>- General characteristics of planning systems, referring to the degree of decentralisation and the general structure of the spatial planning system, including types organisation of spatial planning institutions; and</li> <li>- Features of planning products, aiming at the scope of the plans and the degree of bindingness, and at the symbolic representations of spatial plans, including types of language and style of representation." (Knieling &amp; Othengrafen, 2015, p. 2137)</li> </ul> <p>"Planning Environment</p> <ul style="list-style-type: none"> <li>- Spatial planning's core mission, referring to the highest values and principles spatial planning aims at;</li> <li>- Policy frames and policy-making, describing the ways of decision-making in spatial planning and the involvement of further actors in planning processes; and</li> <li>- General understanding of planning, including the perception and the (self-) conception of spatial planning." (Knieling &amp; Othengrafen, 2015, p. 2138)</li> </ul> <p>"Societal Environment</p> <ul style="list-style-type: none"> <li>- Orientation towards time, identifying the orientation of a society towards the past, present or future, the acquaintance of uncertainty and the implications for spatial planning (e.g. preservation or destruction, routinised or experiential planning processes, etc.);</li> <li>- Qualities of nature, referring to the consideration of nature in society and the consequences for spatial planning (e.g. protection of nature or exploitation of nature);</li> <li>- Properties of the state, consisting of different socio-economic or socio-political societal models and different concepts of justice; and</li> <li>- General characteristics of society, referring to the degree of individualistic thinking in a society and emotional orientations and relations that include the highest values a society is based upon." (Knieling &amp; Othengrafen, 2015, p. 2138)</li> </ul>
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Figure 4. Different levels of observation of planning culture (Knieling & Othengrafen, 2015, p. 2137-2138).

Altogether, the examples in figure 4 give insight in the various elements of planning culture. The most important feature of planning culture in this thesis is that there is a relationship between planning artefacts and societal and planning environments. Essentially this means that artefacts, such as the amount of value capture per dwelling, are the result of both planning and societal environments. Thus the values that are held in the planning department (which are linked to broader societal values) are translated into practice. Due to time and scope limitations, this study focuses on the planning artefacts and planning environment.

In short, the meaning of the planning environment as described by Knieling & Othengrafen (2015) overlaps with the definition of planning culture that is used in this thesis. Both concepts refer to the norms and values that are held within the department, with regards to spatial planning issues. From this point the term planning culture will be used, because it is a more commonly used term in planning literature.

Planning culture might include views on for instance the balance of power between the municipalities and other parties, or for instance whether applications are handled through an elaborate step-by-step procedure or more intuitively. Some of the values might be regulated by policy memoranda, others might not be. Also, the choice to regulate or not regulate can be influenced by planning culture. Note that the planning environment in the model of Knieling & Othengrafen (2015) ends when the actions manifest themselves in planning decisions or outcomes (and thus become artifacts). Here lies the distinction between planning culture and planning decisions. As such the amount of value captured through an anterior agreement (a planning decision) can be influenced by planning culture. Dunning et al. (2019) have provided evidence of this relationship, in the UK.

The relationship between planning culture and the value captured through an anterior agreement can be visualized as follows:

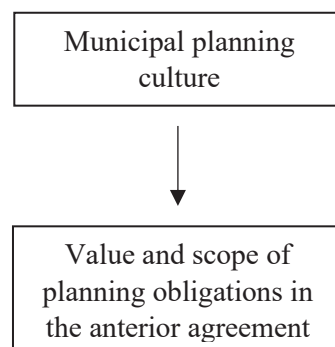


Figure 5. Conceptual model

The conceptual model displayed in figure 5 is an adjusted version of the CPM. One of the differences between this model and the original model is that the societal environment has been left out. Due to practical limitations it would be impossible to assess the entire societal environment, nor is the societal environment directly related to the outcome of planning decisions. Another difference between this model and the CPM is that the relationship is visualized as a one-way relationship rather than a two-way relationship. It is expected that the sum recovered through anterior agreements is determined by (various components of) planning culture. A reversed relationship would theoretically not make sense, because any agreement is the result of human action rather than the result of an outside force that influences decision making. However, in the long run the outcome of negotiations and the consequences of the agreements might provide feedback that will change planning culture. If anything, feedback loops might reinforce or diminish existing values in any planning environment. This could be a topic for further research and will not be included in this research.

## Operationalization

### *Independent variable: planning culture*

Planning culture is the core explanatory variable in this thesis, however it is a fuzzy concept. Planning culture as such cannot be measured directly, which is why various characteristics of Dutch planning culture are identified and chosen as indicators for planning culture. In order to come to an understanding of characteristics of Dutch planning culture, various articles have been consulted that provide examples of Dutch planning culture.

Overall, it seems that municipalities have shifted towards an approach where development risks are shared with developers (Buitelaar, Galle & Sorel, 2014, p. 264-265). Although development plans (Exploitatieplannen) fit with the new strategy, municipalities would rather not use them because the implementation of these plans is complex and costly. Thus, anterior agreements are the preferred cost-recovery tool: “Both municipalities and private developers prefer to negotiate infrastructure costs

using private contracts, in spite of this serving to increase their transaction costs and their associated project risks. While municipalities are thus inclined because they are limited by public law as to the type and scale of costs they can impose via contribution plans, private developers value the control over the scheme and its associated costs that negotiation allows.” (O’Brien et al., 2020, p. 5).

Using the anterior agreement comes with a certain risk: “Given that municipalities are responsible for supplying a sufficient quantity of housing as to meet prevalent need, when they opt to deliver this through partnership with private developers, via negotiated plans, they imbue their negotiations with the risk that, should they fail, housing supply goals will not be met (O’Brien et al., 2020, p. 5-6). That said, municipalities still want to maintain control over developments, and will use development plans in case agreements cannot be used voluntarily. Also, municipalities can and do use the modification of land-use plans as a bargaining tool (Muñoz-Gielen in Muñoz-Gielen & van der Krabben, 2018).

Despite the new interdependency between municipalities and developers, developers argue that municipalities do not substantiate their cost-recovery policy and propositions adequately, referring to a “lack of transparency, predictability, detail, and comprehensibility of the policies underlying the DOs for offsite large infrastructure costs.” (Hendricks et al., 2021, p. 14). This thus indicates legitimacy issues that underly municipal practice. However, Hendricks (2021, p. 14) also found: “What is perhaps surprising, however, is that this does not seem to lead to many conflicts over off-site infrastructure DO’s”. Thus it seems that developers do not care enough or are not in the position to argue about these matters, which might indicate that the institutions facilitate a lack of legitimacy.

If planning culture refers to:

- “Spatial planning’s core mission, referring to the highest values and principles spatial planning aims at;
- Policy frames and policy-making, describing the ways of decision-making in spatial planning and the involvement of further actors in planning processes; and
- General understanding of planning, including the perception and the (self-) conception of spatial planning.” (Knieling & Othengrafen, 2015, p. 2138)

it would seem that, based on the analysis of Dutch practice,

- The core mission of municipalities in the field of spatial planning is to control spatial developments and to avoid financial losses;
- Decision-making is pragmatic: municipalities use instruments to their own advantage, at the expense of legitimacy, and exert some pressure on developers in doing so;
- Planning in The Netherlands is conceived as a way to steer spatial developments, even though the institutional framework is aimed at guiding spatial developments.

In short, planning culture in The Netherlands seems mostly defined by financial risk management and (democratic) legitimacy. Because this research aims to test whether there is a relationship between planning culture and the amount of PVC with the anterior agreement, it would be convenient to classify Dutch planning cultures based on risk-attitudes and democratic legitimacy. This choice is substantiated by the use of these variables in spatial planning research. Moreover, Li et al. (2020) have used risk as an indicator of planning culture in a Dutch and international context. Woestenburg et al. (2018) have chosen democratic legitimacy as an indicator of land management strategies. Since the choice for a land management strategy is highly intertwined with the values and beliefs held by planning officers (Othengrafen, 2014), this variable is also chosen as an indicator for planning culture.

The combination of risk attitudes and legitimacy provides 4 types of planning cultures, when the simplest classification is chosen. A simple classification is desirable for statistical purposes. The first class consists of low-risk and low legitimacy, the second of low-risk and high legitimacy, the third of

high-risk and low legitimacy, the fourth of high-risk and high legitimacy. Which municipalities will belong to which class is determined by the available data.

*Dependent variable: amount of PVC with the anterior agreement*

This variable can be expressed in a monetary value that is agreed upon between the municipality and the developer in an anterior agreement. In order to ensure comparability, the average sum per dwelling will be used as the value indicator of the amount of PVC with the anterior agreement. Additionally, respect will be paid to the various cost-types that are regulated in the Exploitatieplan-legislation. This means a variable will be included that measures to which extent costs in- and outside the exploitation area are covered, as well as the coverage of costs spanning across multiple exploitation areas and contributions to spatial developments. The extent to which the various cost-types are recovered will serve to nuance the average sum per dwelling. For example, a sum of €10.000 per dwelling might seem high, but simultaneously it could be that on average 50% of the expenses for various cost-types are recovered. Another municipality might have recovered €7.000 per dwelling, although the recovery rate of various cost-types may be 80%.

## Hypotheses

With the theoretical concepts narrowed down, the following relationships are hypothesized:

H0: planning culture does not have a significant effect on the value of developer obligations captured with the anterior agreement

H1: planning culture does have a significant effect on the value of developer obligations captured with the anterior agreement

## Chapter Three: Research strategy

This chapter discusses how to test the relationships developed in the theoretical framework. It discusses the gathering of necessary data and ways to process the data. Moreover it provides an argumentation why this particular methodological framework has been chosen, with respect to theoretical and practical considerations. Among the theoretical considerations is the validity of the results of the processing. Among the practical considerations are time and effort constraints. Various benefits and drawbacks of the chosen research strategy will be discussed.

### Variables & relationships

The previously developed hypotheses indicate a relationship between planning culture and the value of developer obligations. The operationalization of planning culture and the value of developer obligations have yielded the following (theoretical) variables:

Planning culture:	Value of developer obligations:
Risk attitude	Average sum per dwelling
Legitimacy	Coverage rates of the different cost-types

Table 1. Variables under study

An examination of the literature has provided an understanding of planning culture in The Netherlands, but no research has yet provided information about planning cultures on municipal level. Similarly, as of now there are speculations of the value of developer agreements in The Netherlands, but no research has yet inventoried how much costs are actually being recovered with the anterior agreement. Thus, due to these circumstances new data needs to be collected for this research.

In order to choose a particular data collection method, the aim of this study and the nature of the variables are considered. The aim of the study is to establish whether there is a relationship between planning culture and the value of developer obligations secured with the anterior agreement, in The Netherlands. Thus, first of all data needs to be collected on national municipal scale, i.e. from each municipality in The Netherlands. Second, the independent variables are based on values and attitudes, thus the data collection method needs to support these kinds of information. In addition, the dependent variables concern information about financial transactions and the contents of PVC contracts. This requires in depth information from planning practitioners.

For the sake of comparability it would be best to obtain data from a specific period in time. The most logical choice would be to gather data from the year 2020, because 2021 has not finished yet. By obtaining data from an entire year, it is likely that also smaller municipalities have information available. However, due to the complexity of the subject, obtaining data over a large period would take more effort on behalf of the respondents, regardless of the method. Either way, since it is expected that data concerning private-law contracts is scarcely documented, gathering sufficient quality data will be a challenge regardless of the period under study.

In short, above considerations can be summarized into a few criteria, which are displayed below:

- 1) Data needs to be collected in as much municipalities in The Netherlands as possible
- 2) Data needs to be collected about values and attitudes in municipalities
- 3) Data needs to be collected about financial transactions and PVC contracts
- 4) In each municipality data needs to be collected from the same period

While there are various methods to consider, one data collection method seems to suit the purpose of this research nicely. The survey is often used for large-scale quantitative analysis, such as the European Social Survey and other national/government research (van Thiel, 2014). In addition,

“Surveys can be employed to collect factual information, but also to gather data on people’s opinions or attitudes towards a certain subject.” (van Thiel, 2014, p. 74).

Although there are many benefits to this method, such as its broad scale and general applicability, there are also drawbacks, for instance: “standardization will render a certain superficiality to the information gathered. For example, if you know that someone estimates the chance of a nuclear disaster occurring to be 75%, you still have no idea why this person thinks this is so.” (Van Thiel, 2014, p. 75).

Although knowing why something happens is also relevant to this research, the subject matter is of such complexity due to legislation and undocumented practice that in the first case it would be very useful to obtain a general insight in the phenomenon of PVC and planning culture. That said, the statistical analysis will emphasize this relationship in detail.

Various other research methods such as case studies or interviews, would render much more in-depth information about the relationship between planning culture and the value of developer obligations. Van Oorschot (2021) has for instance documented the effect of legitimacy on the amount of costs recovered for large, off-site infrastructure, through case-study and in-depth interviews. Although enlightening in terms of understanding legitimacy, this has not contributed to a wider understanding of the relationship between legitimacy and cost-recovery on a national level. Furthermore the emphasis of this study was not on planning culture but on the legitimacy of planning instruments. As such, more qualitative research methods do not comply with the aim to establish national-level characteristics nor are they suitable for statistical generalizability.

That said, in any case this research method (survey) will render a superficial notion of planning culture. While the value of developer obligations secured with the anterior agreement is better suited for investigation by survey, the amount of information required is likely hard to come by. These are limitations that need to be considered throughout the design process and the data collection and analysis procedures.

## The survey

As the main data collection method, the survey has been chosen. While the focus of this thesis is quite narrow, the development and conduction of a survey presents a unique opportunity to study the practice of PVC in a broader sense. Because of this opportunity, and the technical difficulty of developing and conducting a survey, the choice was made to develop the survey in collaboration with Stec Groep. Stec Groep is a renowned Dutch consultancy firm in the domain of land-and area development, and a large share of their clients consists of Dutch municipalities. Throughout their existence they have also undertaken large nation-wide surveys, or so-called benchmarks, and their experience with this research method is thus very valuable to this research. On behalf of Stec Groep, a report about the value and scope of PVC with the anterior agreements and other municipal characteristics will be published. This report will serve to inform the public domain and developing parties, i.e. it will make the survey findings accessible to the general (professional) public. The survey design is thus a joint effort, and the process of developing the survey is described below.

First off, it is worth noting that various persons have consistently engaged with the process of developing the survey. These people are:

- Erwin van der Krabben: Professor in the field of property and area development at Radboud University Nijmegen, who is also the thesis supervisor
- Erik de Leve: Senior consultant and housing-market specialist at Stec Groep
- Esther Geuting: Director of innovation at Stec Groep



While communication with Erwin van der Krabben occurred mostly through scheduled meetings, communication with Erik de Leve was more frequent because the author of this thesis partook in an internship at Stec Groep. Esther Geuting was consulted less frequently, although various scheduled meeting were held together with all four contributors.

During the first meeting the most important features of the survey were discussed. Important features were also inspired by Lord et al.'s (2018) research, which includes a survey designed to measure PVC in the UK. Experience at Stec Groep has shown that it is especially important to minimize the complexity and size of the survey, due to the time and knowledge constraints of planning practitioners in Dutch municipalities. An agreement was reached that the survey should investigate at least information about PVC policy, information about planning culture and information about the practice of PVC. Additionally, some factors were included in the survey that could serve as control variables to explain the amount of PVC.

This lead to the design of a survey containing 15 multiple or fixed choice questions, and one open question regarding remarks about the survey. The questions with multiple (fixed) choice options generally have answer categories that range from 0 (bad/low) to 4 (good/high). In some cases the number of options is greater, but every questions that has scaled answer categories (thus a range from bad to good or low to high) the bad/low option is always classified as a lower score than the good/high option. Thus, all the questions have the same "direction", i.e. from low to high or from bad to good. Some questions have categorical answer categories, i.e. there is no rank or order among them. Some of these answers are ranked afterwards to prepare them for statistical analysis. This applies to Question 5 (see Appendix) in particular.

The survey underwent a pilot, as two planning officers from different municipalities were asked to fill out and discuss the survey. This lead to the refinement of question statements and the alteration of various answer categories.

The questions in the survey that address the main variables in this research are the following:

Risk
<p>To which degree do these statements apply to your municipality in 2020? (answer categories 1: they absolutely don't, 2: they don't, 3: they do, 4: they absolutely do, 5: don't know)</p> <ul style="list-style-type: none"> <li>- As much as possible costs for services that cover multiple exploitation areas had to be recovered</li> <li>- As much as possible costs outside the exploitation area had to be recovered</li> <li>- As much as possible contributions to spatial developments had to be recovered</li> </ul>

Figure 6. Survey questions concerning risk

Legitimacy
<p>Which statement is most in line with the way anterior agreements were set up for housing projects in your municipality in 2020?</p> <ul style="list-style-type: none"> <li>- The scope of the cost-recovery was determined during negotiations with the developer</li> <li>- The scope of the cost-recovery was calculated per project and recovered as accurately as possible</li> <li>- The scope of the cost-recovery was determined by fixed amounts that the municipality used</li> <li>- Don't know</li> </ul>

Figure 7. Survey question concerning legitimacy



Average sum per dwelling
How high was the average cost-recovery sum per dwelling, considering all the dwellings which your municipality has concluded with anterior agreements in 2020?
<ul style="list-style-type: none"> <li>- Don't know</li> <li>- € 0</li> <li>- € 1 - € 5.000</li> <li>- € 5.000 - € 10.000</li> <li>- € 10.001 - € 20.000</li> <li>- € 20.001 - € 30.000</li> <li>- More than € 30.001, being: ...</li> </ul>

Figure 8. Survey question concerning the average cost-recovery sum per dwelling

Coverage rates of the different cost-types
What percentage of the estimated public costs of residential developments in your municipality in 2020, for which anterior agreements were concluded, was recovered? (answer categories: 0%, 1-25%, 26-50%, 51-75%, 76-100%, more than 100%, don't know)
<ul style="list-style-type: none"> <li>- Percentage of coverage of costs within the exploitation area (costs in accordance with Article 6.2.4 Bro, including planning and demolition costs, excluding costs for suburban facilities)</li> <li>- Percentage of coverage of costs for services that cover multiple exploitation areas (infrastructure, public transport, regional green areas, etc., thus multiple exploitation areas need to contribute to the service)</li> <li>- Percentage of coverage of costs outside the exploitation area (equalization of social housing, restructuring of industrial estates, etc., related to the project but outside the planned area)</li> <li>- Percentage of coverage of contributions to spatial developments (infrastructure, greenery, etc.)</li> </ul>

Figure 9. Survey questions concerning the coverage of various cost-types

The complete questionnaire can be found in the Appendix. Note that the original questionnaire was written in Dutch. A further elaboration and substantiation of the particular choice and operationalization of variables can be found in the statistical analysis section of this chapter.

### *Internal validity*

The internal validity of this survey has been secured by first of all using an existing study (Lord et al., 2018) as example. Lord et al. (2018) have developed and used a survey to measure the value of PVC in English municipalities throughout the past years. Although their survey does not indicate measures of planning culture, it does contain questions about planning and PVC artefacts. These questions have served as input for the development of the survey. Furthermore, the process of working on the questions together while formulating and adjusting questions in accordance with theory and previous experiences has raised the internal validity of the survey. In collaboration with an employee of the Ministry of the Interior and Kingdom Relations, definitions of PVC-related concepts have been developed as to reflect the judicial underpinning of these concepts. However, the main problem with internal validity in this survey remains that the topic is quite complex and that any complex matter explained in only a few words will be interpreted differently by different actors. Even in case the topics and concepts have been defined accurately, it may happen that respondents let their own experiences and thoughts guide their interpretation of certain words which will lead to an overall diversity in the interpretation of questions and concepts in the survey.

Most prominently, the complexity of the data necessary to explain the total and/or average amount of PVC in a municipality in 2020 is expected to create some problems for respondents. Although the

question is clear (see Q11 in Appendix), the internal validity of this question is mostly dependent on the willingness and capacity of planning officers to provide an as accurate account as possible.

With this in mind the answer categories have been adjusted to facilitate accurate and educated guessing. As such, the internal validity has been limited because the depth and quality of answers has been reduced. On the other hand, the internal validity has been expanded because it is likely that more respondents are able to fill out this question in the first place, and answers will become more comparable. However, it has been found that a fair share of respondents has answered “don’t know” to a variety of questions. This will be addressed in the analysis chapter.

### *External validity*

The external validity of this study refers to how well the gathered data and performed analysis represent the entire population, i.e. all municipalities, rather than just the ones in the sample. Although to some extent the external validity is about strength in numbers, it also is related to the distribution of municipalities across various characteristics and the representation of these groups in the sample. As can be seen below, the response rate is about 15%, which is very low, as 30% response is already regarded as low (Pallant, 2016). However, the more or less accurate representation of municipalities from various quadrants and sizes makes up for the low response. It seems that results of any analysis of the sample can only be generalized across the Dutch municipalities who participated in the survey.

### *Response*

The final survey was distributed to all municipalities in The Netherlands, through the network and on behalf of Stec Groep. The respondents had about six weeks to fill out the survey to completion. At some point after 3-4 weeks potential respondents were contacted by phone and e-mail in order to increase the response. Eventually 99 respondents partook in the survey, of which 73 filled out the survey to completion. 53 of these respondents delivered information about the dependent variable (the average value of developer obligations per dwelling) whereas a smaller amount delivered information about the percentage of coverage of the various-cost-types. In all, as will be further elaborated, the findings of this survey cannot be generalized across all municipalities in The Netherlands.

Quadrant	Number of municipalities in sample	Share of sample	Number of municipalities in total	Share of total	Share of sample in total
North	7	13%	40	11%	18%
East	10	19%	82	23%	12%
South	17	32%	138	39%	12%
West	19	36%	92	26%	21%
Total	53	100%	352	99%	15%

Table 2. Number of respondents per quadrant

With respect to the location of municipalities in The Netherlands, the distribution of municipalities in each quadrant in the sample to some extent overlaps with the national distribution of municipalities across quadrants. However it seems that municipalities from the South are moderately underrepresented whereas municipalities from the West are overrepresented. The total deviation from the national distribution is 23%.

Size	Number of municipalities in sample	Share of sample	Number of municipalities in total	Share of total	Share of sample in total
Small	20	38%	166	47%	12%
Medium	22	42%	134	38%	16%
Large	10	19%	48	14%	21%
G4	1	2%	4	1%	25%
Total	53	100%	352	100%	15%

Table 3. Number of respondents per size class. (Small < 30.000; Medium > 30.000 < 70.000; Large > 70.000 excluding G4; G4 Amsterdam, The Hague, Rotterdam, Utrecht)

With regards to the size of municipalities in The Netherlands, the distribution of municipalities across various size classes shows moderate overlap with the national distribution. Especially the number of small municipalities is underrepresented. In addition the number of large municipalities is slightly overrepresented. The total deviation from the national distribution is 19% for all classes combined.

## Statistical method

This research focuses on the relationship between two variables that together indicate planning culture, and the value of planning obligations and the coverage of various cost-types. Planning culture is essentially a categorical variable because one culture is not “better” than another, there is no natural hierarchy between them. However, with the theoretical framework of this thesis in mind, the variables of risk and legitimacy can be ordered from low to high. As such, these variables are categorical but can be transformed into numerical variables, with hypothesized equal distances between the scores. The dependent variables are the value of planning obligations that are secured with the anterior agreement and the extent of coverage of the various cost-types. As has been explained before, both dependent variables taken together provide insight in the absolute sum and percentage of costs recovered.

Since the main focus is to analyze the relationship between the independent and dependent variables without any special applications (e.g. factor analysis of latent class analysis) One-Way ANOVA (from this point referred to as ANOVA) seems the best method to test the hypotheses. Mostly, because ANOVA is suitable for measuring the influence of one categorical variable on a continuous variable.

ANOVA “compares the variance (variability in scores) between the different groups (believed to be due to the independent variable) with the variability within each of the groups (believed to be due to chance).” (Pallant, 2016, p. 274). Effectively, the analysis thus tests whether the independent variables have an effect on the dependent variables that differs from leaving the dependent variable determined by chance. For example, when rolling a dice, if this procedure is repeated a 1000 times certain frequencies (occurrences) of each outcome would be registered. In this case, the chances of each outcome is evenly distributed, as the chance for each number (1-6) to show on top is one in six.

Arguably the average value of PVC is not determined by chance alone, as opposed to rolling dice. ANOVA tests whether scores on the independent variables differ per outcome category of the dependent variables. As such, it checks whether there is a “natural” or “perfect” distribution of scores on the independent variables per category of the dependent variable. If the distribution of scores on the independent variables differs per outcome category of the dependent variable (i.e. ABBBC for outcome 1, ABC for outcome 2 and AABBC for outcome 3) this differs from a chance based distribution (i.e. the dice example, ABC for outcome 1, ABC for outcome 2 and ABC for outcome 3). When this distribution across scores of the independent variables differs enough and with enough gravity (in large numbers) from a natural distribution, there is a significant effect of the independent variable on the dependent variable. ANOVA can thus test whether various independent variables cause different scores on a certain dependent variable. This fits well with the aim of this thesis, as the effect of planning culture on the amount of PVC is under investigation.

ANOVA, just like many other techniques relies on various assumptions. The most relevant assumption for ANOVA in this research is the homogeneity of variance, assuming that the survey has been designed well and that respondents have answered without influencing each other's outcomes. The homogeneity of variance depends on the results of the survey and it "means that the variability of scores for each of the groups is similar" (Pallant, 2016, p. 228). The homogeneity of variance can be tested with the Levene's test for equality of variances, which will be carried out in the analysis section. A significant score in Levene's test indicates that the assumption of homogeneity of variance has been violated for the particular independent variable. In case the assumption is violated, for performance of ANOVA another test result can be consulted that compensates for a lack of homogeneity. Both the Welch and Brown-Forsythe statistics can be consulted in case the assumption is violated, and can be interpreted in a similar manner as the regular ANOVA outcome.

In addition to the ANOVA outcome, Cohen's  $d$  will be calculated to gain insight in the effect size. Regular ANOVA output does not provide such information.

### *Data preparation*

Although the operationalization has already been carried out, the data need to be prepared for ANOVA. It was stated earlier that risk would be measured in terms of attitude towards maximum cost-recovery of all cost-types, with the exception of costs within the exploitation area. This choice is substantiated by the difficulty of recovering costs outside the exploitation area. Negotiating contributions for off-site infrastructure is more difficult than on-site infrastructure, because especially cost-recovery towards spatial developments needs to be substantiated by municipal policy (Wro 6.24, 2008). Moreover: "All Dutch municipalities do negotiate developer obligations towards local, on-site infrastructure, and in 2015, at least 23% of them also for large public infrastructure." (Muñoz-Gielen & Lenferink, 2018, p. 784). This lends credibility to the idea that negotiating NDO's for

De Groot as cited in Oorschot (2021, p. 33) reinforces the idea that negotiating cost-recovery outside the strictly necessary and obviously linked to the development is risky: "According to de Groot (2012), the chance that developments will be realized by a developer is reduced when municipalities want to recover more costs than the revenue potential of a certain location, which can happen when municipalities focus too much on achieving public goals or mitigating the adverse impacts of developments without taking into account the viability of developments.". In case a development is not realized, of course cost-recovery is impossible. As such, asking too much costs (while disregarding the development in question) is likely related to demanding obligations outside the exploitation area.

Thus, to develop an indicator of risk-attitudes among municipalities, the items that measure how much costs municipalities want to recover outside the exploitation area need to be merged. For this purpose, a test needs to be performed to measure the internal consistency of these items. If the internal consistency is not high enough, it means that these items do not relate to the same construct and thus the combined variable would not be reliable. Table 4 below shows exactly the items that will be joined and the Cronbach's Alpha value that describes the reliability of the new scale.

Risk	Cronbach's Alpha
<p>To which degree do these statements apply to your municipality in 2020? (answer categories 1: they absolutely don't, 2: they don't, 3: they do, 4: they absolutely do, 5: don't know)</p> <ul style="list-style-type: none"> <li>- As much as possible costs for services that cover multiple exploitation areas had to be recovered</li> <li>- As much as possible costs outside the exploitation area had to be recovered</li> <li>- As much as possible contributions to spatial developments had to be recovered</li> </ul>	0,725

Table 4. Cronbach's Alpha for the combined risk variable

The Cronbach's Alpha value is above 0,7, which means that the combined variable is a reliable measure of risk (Pallant, 2016).

The independent variable legitimacy is not measured directly in the survey. However, legitimacy in this thesis refers to: "consistent, transparent and predictable policy activities" (Woestenburg et al., 2018, p. 804), and one of the items in the survey is deemed to lead to consistent, transparent and predictable policy activities. The item is shown below in figure 10:

Legitimacy
<p>Which statement is most in line with the way anterior agreements were set up for housing projects in your municipality in 2020?</p> <ul style="list-style-type: none"> <li>- The scope of the cost-recovery was determined during negotiations with the developer</li> <li>- The scope of the cost-recovery was calculated per project and recovered as accurately as possible</li> <li>- The scope of the cost-recovery was determined by fixed amounts that the municipality used</li> <li>- Don't know</li> </ul>

Figure 10. The legitimacy variable

The survey that has been developed also contains items about the existence of cost-recovery policy and structural visions. Although it can be expected that availability of such documents lead to a more consistent practice, it is unknown whether the existence of such policy can be attributed to planning culture. The existence of active policy could also depend on the amount of employees within the department, the amount of funds available, or a combination of both and perhaps other factors. That said, the question about the approach towards settling anterior agreements is deemed to be the best indicator of legitimacy.

Since the aim is to develop new combined variable with four planning culture categories, and the item about legitimacy has three answer categories, a choice has to be made regarding which scores belong to a low legitimacy and which scores belong to a high legitimacy. Unfortunately the middle answer cannot be divided into an upper and lower score. Since the middle score implies that municipalities can still vary in the scope of cost-recovery per project, and thus likely does not contribute to a consistent practice, the scores have been admitted to the low transparency category.

The two definitive independent variables are used to construct a variable that indicates planning culture.

Planning culture	Class
Low risk low legitimacy	1
High risk low legitimacy	2
Low risk high legitimacy	3
High risk high legitimacy	4

Table 5. Classification of planning cultures

The classes have been developed from low to high in terms of scores in risk and legitimacy but do otherwise not represent any kind of order. Planning culture is used as the only independent variable in the statistical analysis with ANOVA. The dependent variables in the final analysis are the value of planning obligations (average sum per dwelling) and the extent of coverage of various cost-types.

## Desk Research

Besides the analysis of the theoretical relationships under study, a desk research will be performed to understand the legislative framework of PVC and the anterior agreement in The Netherlands. To understand better what the anterior agreement has to offer, relevant legislation of the Exploitatieplan will be investigated as well. In the context of discretionary freedom, the anterior agreement provides freedom from the Exploitatieplan legislation. With respect to understanding how planning culture might affect the settlement of anterior agreements it is useful to know how the discretionary space of the anterior agreement differs from the Exploitatieplan. Altogether the findings of the desk research may help interpret the empirical findings.

## Chapter Four: Analysis

In this chapter the results of the analysis will be (partially) displayed and discussed. For starters the outcome of the desk research into PVC legislation will be shown, and further on descriptive and statistical data will be elaborated. Especially the results of the ANOVA procedure will be shown, which gives insight in the relationship between the independent and dependent variables. Various unexpected findings will be discussed shortly.

### Desk research: PVC legislation

This section elaborates on the national legislation concerning PVC and the anterior agreement. It provides insight in the background of PVC and an indication of what is regulated and what not. Although most of the legislation refers to the Exploitatieplan, this is the basis for recovering costs in The Netherlands and is the only formal guideline of cost-recovery that municipalities can consult.

The anterior (first paragraph) and posterior (second paragraph) agreements are regulated in article 6.24 of the 2008 Spatial Planning Act (Wet ruimtelijke ordening: Wro). The article is translated as follows:

- 1 When entering into an agreement on land development (grondexploitatie), the mayor and aldermen can include provisions in the agreement regarding:
  - a. financial contributions to land development as well as, based on an established structural vision, to spatial developments;
  - b. settlement of damage that would qualify for compensation on the basis of Article 6.1.
- 2 After establishing an exploitation plan, the mayor and aldermen will observe the exploitation plan when entering into an agreement on land exploitation, on the understanding that the agreement may contain provisions on the elaboration of subjects from the exploitation plan, but cannot contain provisions on subjects that can be part of an exploitation plan, but are not included in it.
- 3 Within two weeks of its conclusion, the mayor and aldermen shall notify the agreement in a newspaper issued by the municipality or in a daily, news or door-to-door newspaper.
- 4 Article 6.4a, second paragraph, applies mutatis mutandis to those who have entered into an agreement on land development that includes a scheme for recovery of planning damage.

Figure 11. Article 6.24 of the 2008 Spatial Planning Act (Wro, 2008).

Above section describes the regulation of the anterior agreement.. The excerpt below shows one of the guiding principles with regards to the amount of costs that may be recovered.

6. Costs in connection with works, activities and measures that benefit the exploitation area or part thereof, and which are attributable to the exploitation plan, are included in the development plan proportionally.

Figure 12. Excerpt from article 6.13 of the 2008 Spatial Planning Act (Wro, 2008)

On the next page, article 6.2.4. of the 2008 Spatial Planning Decree is shown. This piece contains a non-exhaustive list of costs that can be extracted with an Exploitatieplan.



#### Article 6.2.4. of the 2008 Spatial Planning Decree

The costs as referred to in Article 6.13, first paragraph, under c, second part, include:

- a. The costs of conducting research, including in any case soil mechanical and environmental soil research, acoustic research, other environmental research, archaeological and cultural-historical research;
- b. The costs of soil remediation, filling in surface waters, carrying out earthworks, including leveling, raising and excavating;
- c. The costs of constructing facilities in an exploitation area;
- d. The costs of measures, plans, decisions and legal acts with regard to land, buildings, activities and rights in the exploitation area, including limiting environmental hygiene contours and external safety contours;
- e. The costs referred to in Article 6.2.3 and under a to d and g to n with regard to land outside the exploitation area, including the costs of the necessary compensation for natural values lost in the exploitation area, greenery and water supplies;
- f. The costs referred to in Article 6.2.3 and the costs referred to under a to d, insofar as these are necessary in connection with the exploitation of land that will be eligible for development in the near future;
- g. The costs of preparation and supervision of the execution, in connection with the construction of the facilities and works, referred to under a to f, and in Article 6.2.3, under c and d;
- h. The costs of drawing up municipal spatial plans for the exploitation area;
- i. The costs of setting up and supervising municipal design competitions and competitions for the urban design of the site, and the costs of fees for participation in the competition;
- j. The costs of other activities to be performed by the municipal administration or on behalf of the municipality, insofar as these activities are directly related to the facilities, works, measures and activities referred to in this Decree;
- k. The costs of temporary management of the land acquired by or on behalf of the municipality, less the expected revenues from the temporary management;
- l. The costs of compensation for damage, as referred to in Article 6.1 of the Act; in particular non-recoverable VAT, non-compensated compensable VAT, or other non-recoverable taxes, on the cost elements referred to under a to l;
- m. Interest on invested capital and other expenses, minus interest earnings.

Figure 13. Article 6.2.4. of the 2008 Spatial Planning Decree (Bro, 2008).

Additionally, in the figure on the next page a list of facilities that are eligible for cost-recovery with the Exploitatieplan is displayed, taken from article 6.2.5. of the 2008 Spatial Planning Decree.

#### Article 6.2.5. of the 2008 Spatial Planning Decree

The facilities referred to in Article 6.2.4, under c, include:

- a. Utilities with associated works and construction works, insofar as the construction costs are charged to or by the municipality and cannot be covered by the consumption rates;
- b. Sewerage, including ancillary works and construction works;
- c. Roads, unbuilt public parking facilities, squares, sidewalks, pedestrian and cycle paths, water features, waterways, facilities for water management, bridges, tunnels, culverts, quays, jetties, and other works directly related to the construction of these facilities and construction works;
- d. Infrastructure for public transport facilities with associated works and construction works, insofar as the construction costs are charged to or by the municipality and cannot be covered by the user tariffs;
- e. Green facilities, including public parks, parks, playgrounds, football pitches and playgrounds, nature facilities and public non-commercial sports facilities;
- f. Public lighting and hydrants with connections;
- g. Street furniture, playground equipment, decorative elements, art objects and fences in the public space;
- h. Built parking facilities, insofar as they lead to optimization of land use and improvement of the quality of the public space, are publicly accessible and are mainly used by residents and users of the exploitation area, insofar as the construction costs are charged to or by the municipality are charged and cannot be covered by the usage tariffs;
- i. Facilities necessary from an environmental, archeological or public health point of view.

Figure 14. Article 6.2.5. of the 2008 Spatial Planning Decree (Bro, 2008)

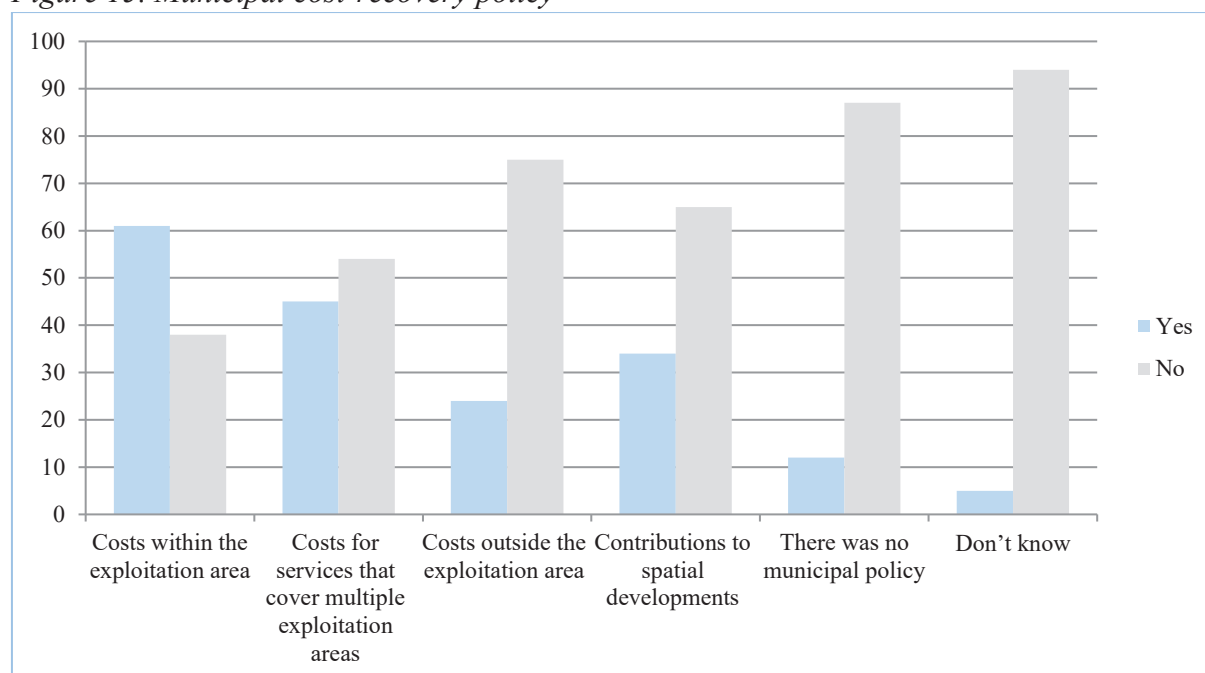
Altogether, it seems that a wide variety of costs can be recovered through an Exploitatieplan. These costs can be related to all kinds of construction, maintenance and administration costs among others. The legislative pieces, which are displayed in the various figures in this section, principally do not apply to the anterior agreement (with the exception of figure 14), which means that the scope of cost-recovery with the anterior agreement is even wider. There is simply no regulation regarding the content of the anterior agreement, so municipalities can recover costs as they see fit. However, the only condition is that a voluntary agreement must be reached. If not, an Exploitatieplan needs to be drawn up.

A short investigation (google search) shows that at least two municipalities (Gemeente West Betuwe, 2021; and Gemeente Dordrecht, 2014) use the guidelines laid out in the Exploitatieplan (in particular the principle laid out in Figure 15) for the settlement of anterior agreements. This might suggest that possibilities for cost-recovery are limited not in theory, but in practice are due to municipal discretion.

#### Survey results: descriptive data

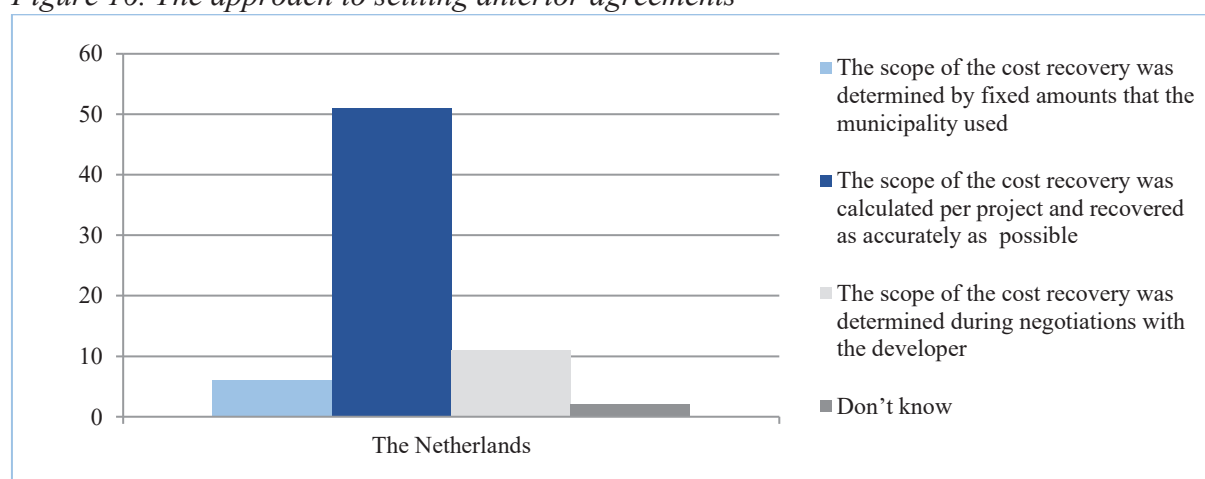
In this section, various descriptive data about the survey results are displayed. These results provide insight in municipal PVC policy, practice and planning culture. These findings might enrich the understanding of the relationships under study in this research but cannot be used to confirm statistical relationships. The statistical relationships are treated in the next section.

Figure 15. Municipal cost-recovery policy



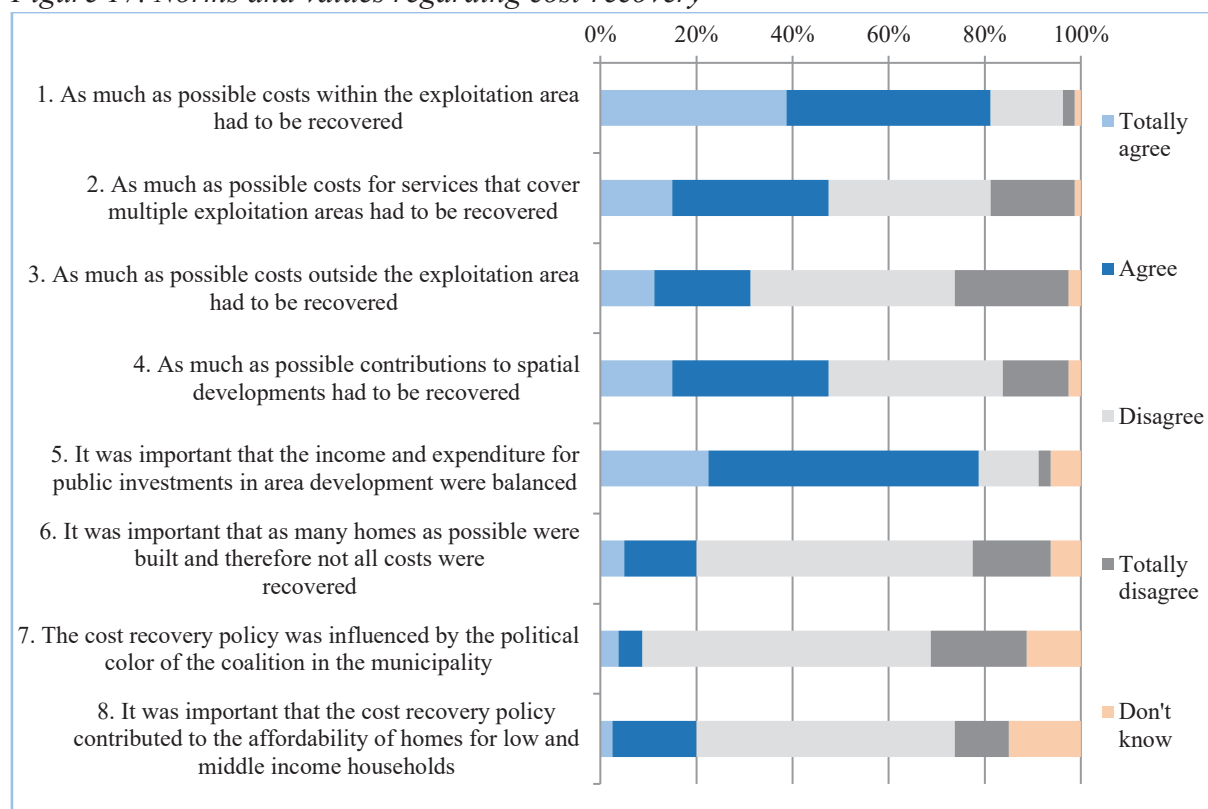
One of the questions in the survey (Question 2) was aimed at finding out which cost-types are regulated in municipal policy. Figure 15 shows that while most municipalities have included policy about costs within the exploitation area, only few municipalities have also included cost-recovery policy about other cost-types. This means that in most municipalities the recovery of costs, excluding costs within the exploitation area, is unregulated and thus either no sum or a highly negotiable sum might be recovered per project.

Figure 16. The approach to settling anterior agreements



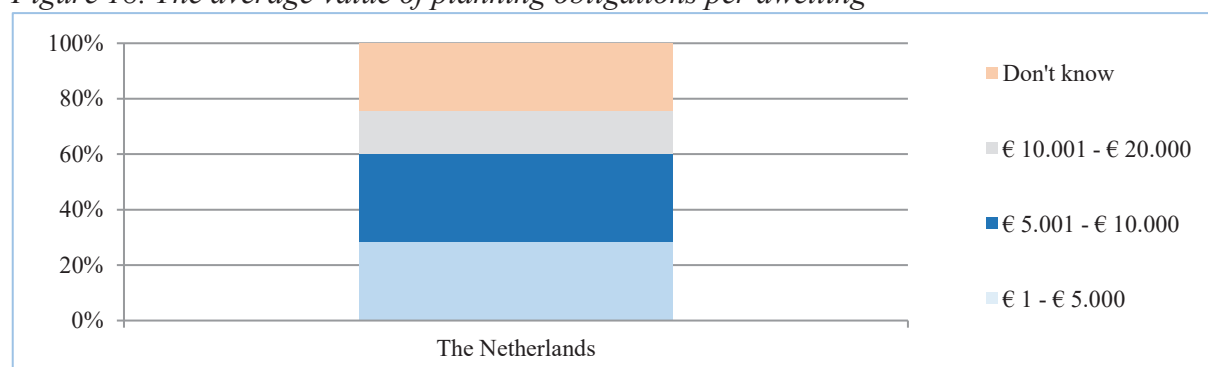
One of the questions in the survey (Question 5) was aimed at finding out how municipalities approach the procedure of negotiating/settling an anterior agreement. This question will later be used as an indicator of planning culture, especially with regards to legitimacy. It was found that in The Netherlands, the majority of municipalities approaches the settlement of an anterior agreement by calculating the costs (that need be recovered) per project. This means that a relatively high degree of discretion is exercised at each cost-recovery project.

Figure 17. Norms and values regarding cost-recovery



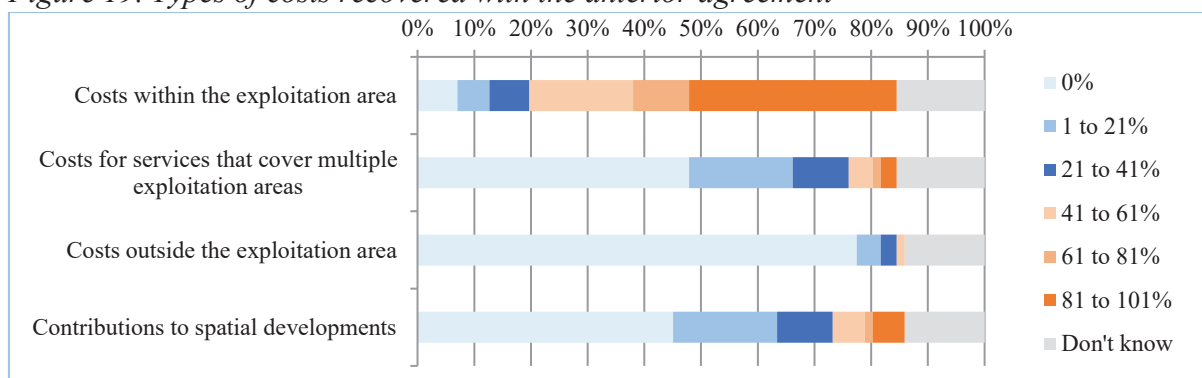
One of the questions of the survey (Question 4) was aimed at acquiring information about norms and values within municipalities, regarding PVC. In other words, this question was designed to measure planning culture, especially with regards to risk. Interestingly, most municipalities do not want to recover as much as possible costs for costs outside the exploitation area (all cost-types except costs inside the exploitation area). Furthermore, although most municipalities agree that income and expenditures for public investments should be balanced, it seems that cost-recovery practice and policy is not explicitly tied to societal goals such as building as much (affordable) housing as possible or political color.

Figure 18. The average value of planning obligations per dwelling



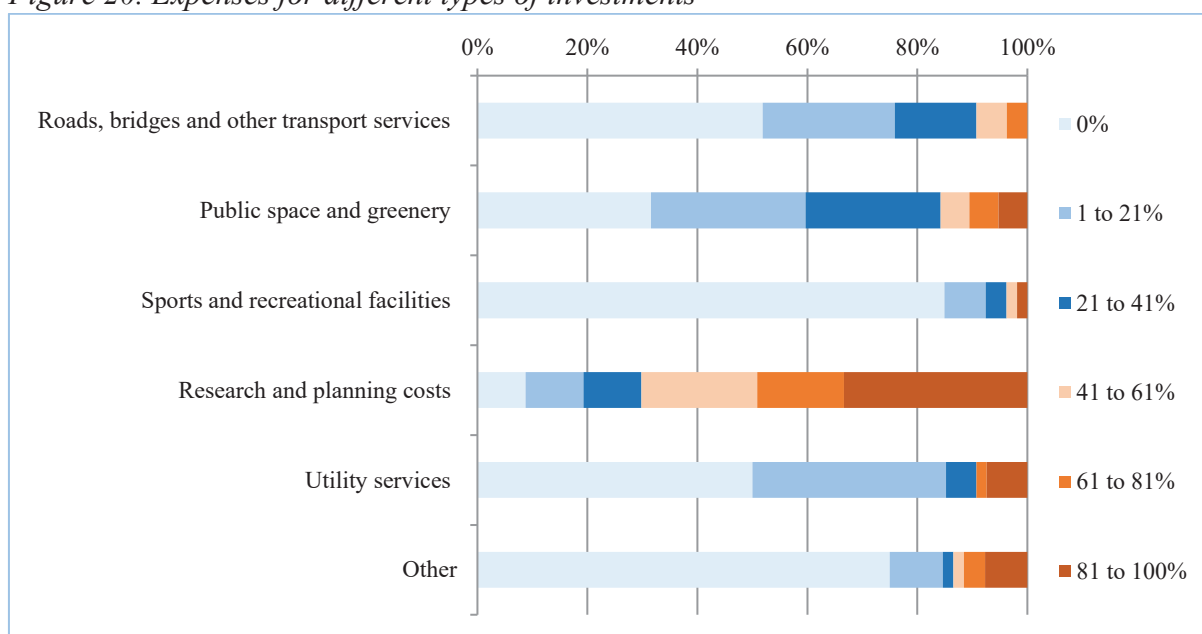
One of the questions of the survey (Question 11) was aimed at obtaining information about the height of the average sum per dwelling captured with the anterior agreement. Figure 18 shows that most municipalities recover between €1 and €10.000 per dwelling. About 16% of the municipalities recovers between €10.001 and €20.000 per dwelling on average. It is remarkable but not unexpected that about 24% of the respondents did not know the answer to this question, or could not provide it.

Figure 19. Types of costs recovered with the anterior agreement



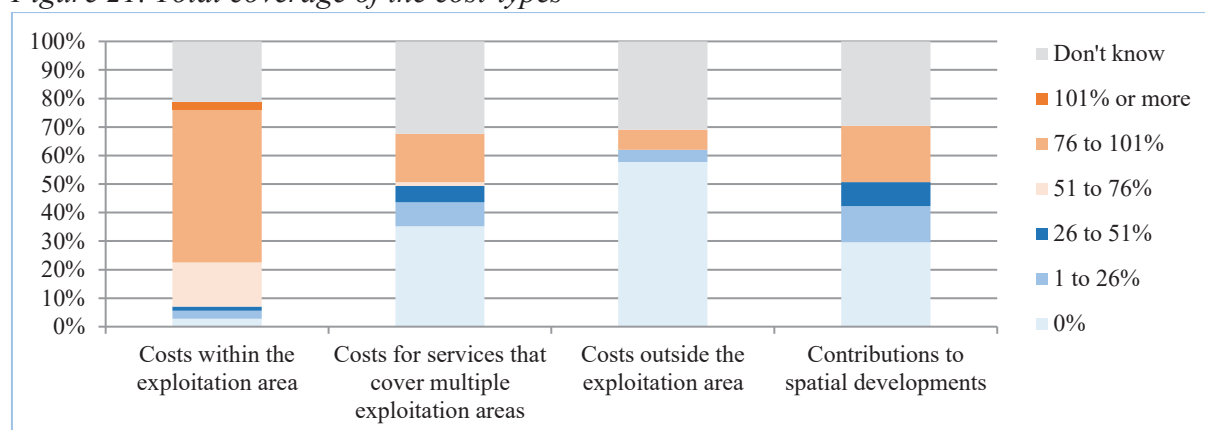
One question of the survey (Question 12) was aimed at uncovering which share of the average sum per dwelling was recovered for which purpose (for which cost-type). It seems that for most municipalities the largest share of the cost-recovery sum is destined for costs within the exploitation area. Fewer costs are recovered for costs outside the exploitation area (all cost-types excluding costs within the exploitation area). Excluding costs within the exploitation area, the contributions to spatial developments represent the largest share of the average sum per dwelling, and barely any costs are recovered for costs outside the exploitation area (the third cost-type).

Figure 20. Expenses for different types of investments



One of the questions of the survey (Question 13) is aimed at uncovering which part of the total sum of recovered costs per dwelling is destined for various types of infrastructure and procedural investments. Figure 20 illustrates that in many municipalities a large share (>40%) of the costs is recovered to compensate research and planning expenses. Public spaces and greenery, as well as roads, bridges and other transport services are the second and third most popular categories. It is remarkable that research and planning costs make up most of the recovered costs, in many municipalities, because it is expected that infrastructure investments (dependent on the scale) are a lot more expensive than research and planning costs. That said, perhaps in most municipalities the scale of development is small and thus research and planning costs might be relatively sizeable.

Figure 21. Total coverage of the cost-types



One of the questions of the survey (Question 15) aims to uncover to what extent the various cost-types are recovered. This percentage gives an indication of how effective the overall cost-recovery has been. Figure 21 shows that about 50% of the municipalities in the sample have a coverage rate of 76% or more for costs within the exploitation area. This is rather high, however this cost-type is generally the easiest to recover. Regarding all cost-types outside the exploitation area (types 2, 3 and 4) at most 20% of the municipalities recover more than 76% of these cost-types. That is, at most, and most likely it does not apply to these three types simultaneously. Even more remarkable is that these three cost-types (all except costs within the exploitation area) are not recovered at all in 30% to 55% of all municipalities. However, since the score indicates 0% coverage, it can be expected that these municipalities have made expenditures towards these cost-types but simply can't or do not recover them. How large these expenditures per cost-type have been is unknown.

#### *Average sum per dwelling and the coverage of cost-types*

Altogether, the indicator of coverage of cost-types can be used to understand the potential of cost-recovery for Dutch municipalities. Based on the weighted average sum per dwelling (30 x €2.500, 30 x €7.500, 15 x €15.000, see part 4) the average sum per dwelling in The Netherlands could be about €7.000. To calculate the overall unused potential of cost-recovery for the various cost-types is more complicated. The largest share of the average sum per dwelling consists of costs within the exploitation area, and costs within the exploitation area also generally have a high degree of coverage. However, given that at least 30% of all costs outside the exploitation area (including costs for services that cover multiple exploitation areas and contributions to spatial developments) is completely unrecovered, for this calculation a minimum unused potential for cost-recovery of 30% is maintained. This means that municipalities could recover €9.100. In case the total costs for investments outside the exploitation areas (type 2, 3 and 4) are equal or larger than the costs within the exploitation area, the unused potential might be €14.000 per dwelling.

The report by Rebel group (2021) which was also cited in the introduction, has found a municipal deficit of €-12.600 per dwelling for costs directly related to the development (most likely costs within the exploitation area) and another €-14.900 per dwelling for costs not directly related to the development (most likely all cost-types outside the exploitation area). This lends credibility to the idea that municipalities are recovering far less costs than they could (hypothetically in terms of finance) and that indeed, the average sum per dwelling that was found in this research only presents a fraction of the costs that are made by municipalities and could be recovered. Especially when regarding the results presented in figure 21 which show that a lot of costs are barely recovered.

#### *“Don't know” answers*

The high share of “don't know” answers to important questions such as the average sum recovered per dwelling and the extent of coverage of the various cost-types can indicate two things. First, it might

indicate that the respondents, who consist mostly of (economical) planning officers within municipalities, do not have insight in the costs recovered with the anterior agreement and the total amount of expenses that should be compensated. Second, it might indicate that the respondents could or would not gather the necessary information to answer these questions, due to time and effort limits. Either way, the high amount of “don’t know” answers indicates that the amounts of PVC are not easily found or estimated. This could be due to the unregulated and perhaps relatively poorly documented nature of settling anterior agreements. The way these negotiations are documented though, is expected to vary per municipality.

In total, the 15 questions of the survey consisted of 53 sub-questions. That is, one question might require a respondent to agree or disagree with eight statements separately. In about 30% of the questions, less than 60 respondents could answer the question without answering “don’t know”.

## Statistical analysis of independent and dependent variables

In this section, the statistical analysis of the main variables under study is displayed. The word “frequencies” is used for the amount of respondents in each category. These frequencies determine whether the statistical analyses meet certain conditions, and determine the outcome and strength of the analyses.

### *Frequencies of the independent variables Risk and Legitimacy*

Original variables	Frequencies (number of municipalities / respondents)		
	Low	High	Total
Risk	65	6	71
Legitimacy	56	6	61

Table 5. Descriptive frequencies of the variables Risk and Legitimacy

Combined variable	Frequencies (number of municipalities / respondents)				
	Low + Low	Low + High	High + Low	High + High	Total
Planning Culture (Risk + Legitimacy)	51	4	4	1	60

Table 6. Descriptive frequencies of the combined variable Planning Culture (based on risk and legitimacy)

Tables 5 and 6 show the distribution of the municipalities in terms of their scores on risk and legitimacy. Simply put, the table shows how many municipalities (respondents) belong to the various categories. In all, the sample is characterized by a risk-averse attitude and relatively low legitimacy. In practice, this means that most municipalities do not want to recover much costs outside the exploitation area. It also means that municipalities mostly choose to leave PVC settlement entirely up to negotiations or a per-project appraisal basis. In the descriptive data section (approach to settling anterior agreements) the distribution of municipalities among the classes is displayed more accurately.

### *Frequencies of the dependent variables Average PVC per dwelling and Coverage of costs*

	Frequencies (number of municipalities / respondents)			
	€1 - €5.000	€5.001 - €10.000	€10.001 - €20.000	Total
Average PVC per dwelling	20	22	11	53

Table 7. Descriptive frequencies of the variable Average PVC per dwelling

Table 7 shows that the average sum recovered per dwelling is evenly distributed across the three categories, although less municipalities belong to the group that recovers the most costs per dwelling. Thus, on the most common cost-recovery sum lies between €1 and €10.000 per dwelling.



Coverage of costs:	Frequencies (number of municipalities / respondents)						Total
	0%	1% - 25%	26% - 50%	51% - 75%	76% - 100%	More than 100%	
Within the exploitation area	2	2	1	11	38	2	56
For services that cover multiple exploitation areas	25	6	4	1	12	0	48
Outside the exploitation area	41	3	5	0	0	0	49
For contributions to spatial developments	21	9	6	0	14	0	50

Table 8. Descriptive frequencies of the variable Coverage of costs

Table 8 shows to which extent the various cost-types are recovered in most municipalities. For costs within the exploitation area, most municipalities recover between 76% and 100%. For costs outside the exploitation area (including costs for services that cover multiple exploitation areas and contributions to spatial developments) most municipalities recover 0% of the costs. There are also many cells that contain a frequency of zero, meaning that none of the respondents recover costs to the corresponding extent, as for instance 0 municipalities recover between 51% and 75% for contributions to spatial developments.

#### *Relationships between the independent and dependent variables*

In table 11 and 12 the relationships between the independent planning culture variables and the dependent PVC variables are examined. In particular these tables show the results of statistical procedures that have been described in the research strategy chapter. First off however, the variables developed in this research have been abbreviated for visual simplicity (see tables 9 and 10).

Independent variable	Abbreviation
Planning culture, based on risk and legitimacy	PC_Risk_Legit

Table 9. Abbreviation of the independent variable

Dependent variables	Abbreviation
Average value of planning obligations per dwelling	PVC_Avg_Dwell
Coverage of costs within the exploitation area	Cov_In_Ex
Coverage of costs for services that cover multiple exploitation areas	Cov_Multi_Ex.
Coverage of costs outside the exploitation area	Cov_Out_Ex.
Coverage of contributions to spatial developments	Cov_Spat_Dev.

Table 10. Abbreviations of the dependent variables

Table 11 shows the first test that has been performed as part of the statistical procedure. This test concerns the assumption of homogeneity of variance, that was described in the research strategy chapter. For this test, which is part of the ANOVA procedure, the input variables have been chosen in accordance with the independent variable and dependent variables listed in tables X and X above. The test shows whether the variance of scores of the independent variable is evenly distributed in the various categories of the dependent variables. The output shows that the variance of scores on the independent variable is significantly uneven across the categories of PVC\_Avg\_Dwell and Cov\_Multi\_Ex, meaning that the assumption of homogeneity of variances has not been met for these variables. This means that for interpretation of the ANOVA test, which indicates the significance of the relationship between the independent and dependent variables, the Welch and Brown-Forsythe tests need to be consulted for PVC\_Avg\_Dwell and Cov\_Multi\_Ex.

Variable name	Test of Homogeneity of Variances
	Significance
PVC Avg Dwell	0,021
Cov In Ex	0,342
Cov Multi Ex	0,026
Cov Out Ex	0,203
Cov Spat Dev	0,070

Table 11. Test of Homogeneity of Variance

In table 12, the ANOVA analysis has been carried out. The same variables were used as in the previous table. In the output are included the Welch test, and the Cohen's b effect size has been calculated and displayed as well. The orange highlighted values are of importance to the variables that have been highlighted orange in the previous table. Based on table 11, it was determined that the Welch test needed to be consulted for the variables which violated the assumption, but because there is a lack of observations (i.e. some categories of the dependent variable contain zero respondents) the Welch statistic could only be calculated for Cov\_Spat\_Dev. Thus, based on the ANOVA results, little can be said about the significance of the relationship between planning culture (PC\_Risk\_Legit) and the average value captured per dwelling and the coverage of costs within the exploitation area. Cov\_In\_Ex, Cov\_Out\_Ex and Cov\_Spat\_Dev do meet the criteria for ANOVA, but are not significantly related to PC\_Risk\_Legit. Thus, planning culture is not significantly related to the coverage of costs within the exploitation area, costs outside the exploitation area and contributions to spatial developments.

Variable name	ANOVA		
	Effect size (Cohen's b)	Sig.	Welch
PVC Avg Dwell	0,02	0,832	-
Cov In Ex	0,03	0,497	-
Cov Multi Ex	0,00	0,964	-
Cov Out Ex	0,09	0,169	-
Cov Spat Dev	0,00	0,922	0,916

Table 12. ANOVA

### Hypotheses

In the theoretical framework, various hypotheses were developed. These hypotheses will be reviewed step by step.

- H0: planning culture does not have any effect on the value of developer obligations captured with the anterior agreement

Since the ANOVA did not show any significant relationships between the planning culture variable and the PVC variables, there is no reason to reject this hypothesis.

- H1: planning culture does have a significant effect on the value of developer obligations captured with the anterior agreement

The ANOVA has shown that there are no significant relationships between the planning culture variable and the PVC variables. Thus H1 is rejected.

### Interpretation of the outcome

It was expected that planning culture has influence on the amount and extent of PVC with the anterior agreement. This expectation was mostly based on the amount of discretionary freedom that is offered

by the anterior agreement. However, it turns out that municipalities hardly differ in their planning cultures. This suggests that municipalities are unlikely to behave very differently when given much freedom, with the exception of acting in accordance with market conditions.

Additionally, there are variations in the amount of cost-recovery. Given that the actual costs of investments may vary, this might have been expected (although the anterior agreement has no actual limit to cost-recovery). However, there is much less variation in the coverage of the various cost-types. It turns out that most municipalities recover high percentages of costs within the exploitation plan and many municipalities recover low percentages of costs outside the exploitation plan (including costs for services that cover multiple exploitation areas and contributions to spatial developments). This supports the idea that municipalities take little risks, in spite of the large municipal deficits in housing development projects. Additionally, there is little inter-municipal variation where freedom to vary exists.

The bottom line seems that although freedom exists, in practice it is limited. This might be due to the use of the Exploitatieplan as guidance for settling anterior agreements, or some form of historic institutionalism based on previous use of the Exploitatieplan. Additionally, limitations might be caused by municipal constraints such as a lack of staff or funding. Limitations might also be found in the willingness of developers to cooperate with municipalities, in terms of agreeing to their demands. Most probably a combination of these factors act as constraints to the freedom of the anterior agreement. These limitations likely reduce the scope of influence of planning culture and might help provide the answer to why planning culture is not related to the amount and extent of PVC.

## Unexpected findings

An unexpected finding is the amount of respondents that did not know the average cost-recovery sum in their municipality. This lack of knowledge suggests that when these people settle new anterior agreements they do it without the knowledge of previous agreements. This substantiates the idea that Dutch municipal PVC with the anterior agreement enjoys low legitimacy.

## Preliminary international comparison

In the UK, Lord et al. (2018) have studied the total value of developer obligations through a nationwide survey. The survey has yielded the following results:

Year	Number of dwellings agreed upon in NDO negotiations	Total value of developer contributions, excluding CIL and contributions towards affordable housing	Average value per dwelling, excluding CIL and contributions towards affordable housing
2016-2017	144.892*	€1.015.100.000**	€7.006

Table 13. Scope of developer obligations in the UK. (Lord et al., 2018, \*p. 43; \*\*p. 37)

The average sum recovered per dwelling is remarkably similar to the sum per dwelling recovered in The Netherlands. Furthermore, Dunning et al. (2019) have studied how developers perceive the (municipal) practice in the realm of PVC. Notably “There was clear consensus amongst developers of all types that uncertainty was understood to be the principal negative aspect of planning obligations” (Dunning et al., 2019, p. 465). This overlaps with the findings that in The Netherlands, municipalities’ approach to recovering costs with the anterior agreement has low legitimacy. These findings help understand the implication of planning culture for recovering costs through NDO’s.

The UK employs the Section 106 tool to exact costs, which is similar but not identical to the anterior agreement. The comparative findings displayed above warrant a further investigation of the

differences and similarities of both tools in both theory and practice, especially in relation to planning culture.

## Chapter Five: Conclusion

This section concludes the findings of this thesis. It sequentially addresses each sub-question and the main research question. Following the answers to the research questions, a theoretical discussion of the research outcome is provided.

### Sub-questions

#### *What is planning culture?*

It was found that planning culture refers to values and beliefs about matters in the realm of spatial planning, in municipalities. It turned out that in The Netherlands, the planning system and thus planning culture has been and is mostly characterized by the way risks are being taken or avoided and the way legislation is sidestepped or creatively misused. The theorized planning culture variables in The Netherlands are thus risk-propensity and legitimacy. It was found that most municipalities in The Netherlands show risk-averse behavior and in general perform their PVC practice with low legitimacy.

#### *What are developer obligations and how are they regulated?*

Developer obligations are contributions that developers pay to municipalities to compensate for municipal investments. These investments are made in terms of the construction of infrastructure and services but also in research and planning costs. With regards to infrastructure, developers are the main beneficiaries whereas municipalities do not profit from this, which is why they secure cost-recovery through public-and private law contracts. The anterior agreement is a private law contract which apart from the necessity to underpin contributions for spatial developments with policy, does not contain any specifications. This results in a lot of discretionary freedom, which means that each municipality can lawfully choose a different way to substantiate and negotiate cost-recovery. However, it seems that municipalities often use Exploitatieplan regulation as the backdrop of their anterior agreements. This limits the cost-recovery potential.

#### *How much developer obligations are obtained with the anterior agreement?*

It was found that most municipalities on average recover between €1 and €10.000 per dwelling with the anterior agreement. About 15% of municipalities recovers between €10.001 and €20.000 per dwelling on average. Based on this distribution the estimated average value across all municipalities is about €7.000 per dwelling. The coverage rates of the various cost-types, with exception of costs within the exploitation area, are low. Depending on the scale and gross cost of developments outside the exploitation area (costs for services covering multiple exploitation areas, outside the exploitation area and contributions to spatial developments) 100% recovery of costs outside the exploitation area could either lead to a major increase in the overall cost-recovery sum or a smaller increase. While keeping in mind that there is a large municipal deficit per dwelling, it is questionable whether even half of the possible cost-recovery takes place.

### Main research question:

#### *What is the relationship between municipal planning culture and the amount of developer obligations obtained with the anterior agreement?*

The analysis has pointed out that there are no significant statistical relationships between the independent variable planning culture and the dependent variables of average sum recovered per dwelling and the coverage of various cost-types. This means that the two defining cultural traits of Dutch municipalities have no demonstrable influence on the practice of PVC.

## Conclusion

The main finding of this research is that planning culture is not significantly related to the value and extent of coverage of planning obligations in the anterior agreement. Although the anterior agreement provides freedom to municipalities in terms of regulations, the Exploitatieplan legislation might act as a constraint to the freedom of municipalities. Not because the Exploitatieplan regulates the contents of the anterior agreement, but rather because municipalities choose to adhere to this legal framework as a guideline.

Also, the current planning system is aimed at facilitative land management and development, i.e. municipalities aid developers in land and area development and as such simultaneously fulfil their own goals. It might be that municipalities used to be engaged in high-risk behaviour when they could develop and sell land by themselves. Additionally, a low legitimacy might facilitate the effectiveness of such behaviour. Since active land development and sale is no longer common however, it might be that municipalities have trouble to channel these attitudes or ambitions through more facilitation-oriented tools such as the anterior agreement.

Municipalities have become dependent on developers and in general have a weak negotiation position, with the exception of being able to provide permits and adjust land-use plans. In case no agreement is reached however, municipalities have few options beside drawing up an Exploitatieplan or expropriating the landowner, which are both costly. Bearing in mind this power distribution, it is not strange that the outcome of PVC is found to be unrelated to planning culture, simply because municipalities might feel that there is little room to negotiate when settling anterior agreements.

Overall, it seems that practical necessity overrules the influence of cultural values on the settlement of anterior agreements. Why this particular approach exists is unclear, be it due to a lack of capacity, a (perceived) lack of freedom or indifference. However, pragmatic attitudes have characterised Dutch municipal practices for a long time and it wouldn't be surprising if pragmatism were of great influence on the settlement of anterior agreements.

## Scientific contribution

This research contributes to the scientific field of PVC and planning culture research in the following way. It has yielded comparable evidence (a dataset and empirical evidence) of both planning cultures and the practice of PVC in Dutch municipalities. As such it has provided a unique contribution to PVC literature in the context of The Netherlands, because as of yet most available research is of theoretical nature and comprises desk research.

Simultaneously, this research has developed a categorization of planning cultures that is statistically and theoretically substantiated. This framework could be used in further research. This research also provides insight into what variables affect or do not affect the outcome of PVC negotiations. As such, it provides a reason for further academic study of the influence of planning culture variables among others, on the amount and extent of PVC.

## Societal contribution

The societal contribution of this research lies in the insight in planning cultures and the amount and extent of PVC. First and foremost, because the data generated in this research serves as feedback for municipalities regarding their PVC practices. Although no link has been proven between planning culture and the amount and extent of PVC, municipalities might value information about their planning cultures that they might be unaware of. The way planning culture in this research is categorized may not be entirely accurate with regards to grasping "true" planning culture, but the fact that most municipalities do not try to negotiate much contributions for costs outside the exploitation area might be useful information. If not on municipal level, it might be relevant to policymakers on



national level, who intended that the anterior agreement be used for capturing value for different cost-types.

Probably more valuable to municipalities is the information about the amounts of value captured. Municipalities might learn from other, more “successful” municipalities in terms of their approach to PVC, with regards to cultural traits or other characteristics.

### Generalizability of the findings

It is expected that the findings of this study only apply to the municipalities that partook in the survey. Although the sample was quite evenly distributed across the country, only a small proportion ( $1/7^{\text{th}}$ ) of the total amount of municipalities was included in the sample.

## Chapter Six: Reflection

### Reflections on data collection

There are some implications of the way data was collected for the outcome of this study. Inherent to survey research, there are constraints to the depth of the data that can be obtained. For example, the response relies on the willingness of municipal planning officers to respond to the survey. This issue has been tackled by designing a survey that is relatively short and requires indicative answers, although this limits the quality of the information provided. Even though the survey was designed to be as simple as possible, many municipalities could not fill out the survey to completion, or otherwise often answered “don’t know” to certain questions. For example, out of 73 fully completed questionnaires, about 50 respondents knew the average value captured per dwelling in 2020. In itself, this either means that respondents did not know how much value was captured in their municipality with the anterior agreement in 2020, or did not want to put effort into finding out. It would be valuable to know which is the case, because it has implications for the validity of this study. That said, some uncertainty about the quality of the answers has to be taken for granted in order to perform quantitative analysis. In order to compensate for these risks however, it would be useful to undertake further research that focuses explicitly on obtaining information about the scope and extent of coverage of PVC. Since this is essentially part of policy evaluation, it would be beneficial if national authorities would conduct such a research, in order to ensure that all municipalities participate. For an example of an elaborated questionnaire, Lord et al. (2018) can be consulted.

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# Appendix

## *Survey – translated from Dutch*

1. Was there (active) municipal policy for recovering costs with the anterior agreement for housing development in your municipality in 2020?
  - Yes, there was active municipal policy in 2020, embedded in a policy document or policy note
  - Yes, there was municipal policy in 2020 but it was not active
  - No
  - Don't know
  
2. Which cost categories did the municipal policy (your answer to question 1) address? (Multiple answers possible)
  - Costs within the exploitation area (costs in accordance with Article 6.2.4 Bro, including planning and demolition costs, excluding costs for suburban facilities)
  - Costs for services that cover multiple exploitation areas (infrastructure, public transport, regional green areas, etc., thus multiple exploitation areas need to contribute to the service)
  - Costs outside the exploitation area (equalization of social housing, restructuring of industrial estates, etc., related to the project but outside the planned area)
  - Contributions to spatial developments (infrastructure, greenery, etc.)
  - There was no municipal policy
  - Don't know
  
3. Did your municipality have an active structural vision in 2020 that was used to justify cost-recovery in housing projects, for costs outside the exploitation area and contributions to spatial developments?
  - Yes
  - No
  - Not applicable (there were no costs outside the exploitation area and/or spatial developments to recover costs for in 2020)
  - Don't know
  
4. To which degree do these statements apply to your municipality in 2020? (answer categories 1: they absolutely don't, 2: they don't, 3: they do, 4: they absolutely do, 5: don't know)
  - As much as possible costs within the exploitation area had to be recovered
  - As much as possible costs for services that cover multiple exploitation areas had to be recovered
  - As much as possible costs outside the exploitation area had to be recovered
  - As much as possible contributions to spatial developments had to be recovered
  - It was important that the income and expenditure for public investments in area development were balanced
  - It was important that as many homes as possible were built and therefore not all costs were recovered
  - The cost-recovery policy was influenced by the political color of the coalition in the municipality
  - It was important that the cost-recovery policy contributed to the affordability of homes for low and middle income households



5. Which statement is most in line with the way anterior agreements were set up for housing projects in your municipality in 2020?
  - The scope of the cost-recovery was determined during negotiations with the developer
  - The scope of the cost-recovery was calculated per project and recovered as accurately as possible
  - The scope of the cost-recovery was determined by fixed amounts that the municipality used
  - Don't know
  
6. What is the number of dwellings for which your municipality has concluded anterior agreements in 2020 and what is the number of dwellings for which your municipality has concluded land allocation agreements in 2020? (indicative)
  - Number of dwellings concluded with anterior agreement (0, 1-50, 51-100, 101-150, 151-200, 201-250, 251-500, 501 or more, don't know)
  - Number of dwellings concluded with land allocation agreement (0, 1-50, 51-100, 101-150, 151-200, 201-250, 251-500, 501 or more, don't know)
  - Total (0, 1-50, 51-100, 101-150, 151-200, 201-250, 251-500, 501 or more, don't know)
  
7. What proportion of dwellings in your municipality in 2020 has been concluded with anterior agreements and what proportion has been concluded with land allocation agreements?
  - Percentage of dwellings on private property (anterior agreement); (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
  - Percentage of dwellings on municipal property (land allocation agreement); (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
  
8. How is the amount of dwellings that was concluded with anterior agreements in your municipality in 2020 distributed across various types of locations?
  - Dwellings in already developed areas where construction can take place immediately (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
  - Dwellings in already developed areas where prior to construction buildings need to be demolished (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
  - Dwellings in undeveloped locations (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
  
9. Can you indicate what percentage of dwellings that was concluded with anterior agreements in your municipality in 2020 was designated as social rental housing (rent limits based on 2020 price level)?
  - Percentage of social rental housing (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
  
10. Can you further specify the distribution of the amount of dwellings that was concluded with anterior agreements in your municipality in 2020 according to price classes?
  - Low/social rent (up to €737 monthly) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)

- Low sale (up to €185.000) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Mid rent (€738 to €1.000 monthly) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Mid sale (€185,000 to €350.000) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Expensive rent (from € 1.000 monthly) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Expensive purchase (from €350.000) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)

11. How high was the average cost-recovery sum per dwelling, considering all the dwellings which your municipality has concluded with anterior agreements in 2020?

- Don't know
- € 0
- € 1 - € 5.000
- € 5.000 - € 10.000
- € 10.001 - € 20.000
- € 20.001 - € 30.000
- More than € 30.001, being: ...

12. What percentage of the cost-recovery sum for dwellings which your municipality has concluded with anterior agreements in 2020 was allocated to various cost-types?

- Costs within the exploitation area (costs in accordance with Article 6.2.4 Bro, including planning and demolition costs, excluding costs for suburban facilities) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Costs for services that cover multiple exploitation areas (infrastructure, public transport, regional green areas, etc., thus multiple exploitation areas need to contribute to the service) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Costs outside the exploitation area (equalization of social housing, restructuring of industrial estates, etc., related to the project but outside the planned area) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)
- Contributions to spatial developments (infrastructure, greenery, etc.) (0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, don't know)

13. What percentage of the cost-recovery sum for dwellings which your municipality has concluded with anterior agreements in 2020 (costs within exploitation area, costs covering multiple exploitation areas, costs outside the exploitation area and contributions to spatial developments) was related to:

- Roads, bridges and other transport services (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
- Public space and greenery (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
- Sports and recreational facilities (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
- Research and planning costs (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)
- Utility services (connection to sewer system, gas provision etc.) (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)

- Other (0%, 1-20%, 21-40%, 41-60%, 61-80%, 81-100%, don't know)

14. Did you choose 0% for any of the categories in the previous question, because these developments were carried out by a developer and thus no costs needed to be recovered? If so, tick the relevant boxes.

- Not applicable
- Roads, bridges and other transport services
- Public space and greenery
- Sports and recreational facilities
- Research and planning costs
- Utility services (connection to sewer system, gas provision etc.)
- Other

15. What percentage of the estimated public costs of residential developments in your municipality in 2020, for which anterior agreements were concluded, was recovered?

- Percentage of coverage of costs within the exploitation area (costs in accordance with Article 6.2.4 Bro, including planning and demolition costs, excluding costs for suburban facilities) (0%, 1-25%, 26-50%, 51-75%, 76-100%, more than 100%, don't know)
- Percentage of coverage of costs for services that cover multiple exploitation areas (infrastructure, public transport, regional green areas, etc., thus multiple exploitation areas need to contribute to the service) (0%, 1-25%, 26-50%, 51-75%, 76-100%, more than 100%, don't know)
- Percentage of coverage of costs outside the exploitation area (equalization of social housing, restructuring of industrial estates, etc., related to the project but outside the planned area) (0%, 1-25%, 26-50%, 51-75%, 76-100%, more than 100%, don't know)
- Percentage of coverage of contributions to spatial developments (infrastructure, greenery, etc.) (0%, 1-25%, 26-50%, 51-75%, 76-100%, more than 100%, don't know)