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## Measuring and comparing planning cultures: risk, trust and co-operative attitudes in experimental games

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### ABSTRACT

Cultural impacts in planning increasingly receive attention from both academics and practitioners around Europe. However, comparative planning cultures studies face the challenges of lacking systematic comparison and empirical evidence, especially at the micro level of planning actors' behaviour in interaction. This article aims to fill these gaps by (1) operationalizing the concept of planning culture; and (2) measuring and comparing it. We base our operationalization on the culturized planning model (Knieling, J., & Othengrafen, F. (Eds.). (2009). *Planning cultures in Europe: Decoding cultural phenomena in urban and regional planning*. Farnham: Ashgate). We complement its explanatory power by building a link between planning culture and planning outcome through attitudes of planning actors. This article focuses on three attitudes: risk, trust and co-operation. To measure and compare these attitudes, we adopt three experimental economic games and conduct an experiment with public and private planning practitioners in three European countries: Belgium, the Netherlands and Norway. Both cross-country and public-private differences in these attitudes are tested in the experiment. Our experimental findings suggest that Dutch planning actors value risk aversion and trust; Norwegian planning actors value cooperation; while (French-speaking) Belgian planning actors do not value these variables that much.

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Comparative planning cultures; attitudes; experiment; Belgium; the Netherlands; Norway

## 1. Introduction

Urban development can be considered as the result of the interplay between spatial planning and land and property markets. One might argue that spatial planning defines to a large extent the institutional conditions (or restrictions) for investments in land and property development. Within this institutional context and influenced by market conditions (demand for real estate; investment climate), both public and private actors operate. They decide whether to invest in urban extensions, urban transformations or renovations or

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perhaps to delay intended investment projects, to make use of certain policies, instruments and governance modes, to co-operate with other stakeholders, and to buy or sell land and properties, etc. In different countries and at different times, the institutional contexts and market conditions explain differences in outcomes of urban development processes to a large extent. However, though regulatory planning frameworks and market conditions have a substantial impact on stakeholder decisions, they cannot explain all differences in outcomes. Planning systems usually leave quite some *room to manoeuvre* for both public and private stakeholders to decide how to act, while market conditions can be interpreted in different ways. Therefore roles and positions of public and private stakeholders differ between planning systems. In this paper we argue that how roles are fulfilled and discretion is exercised is shaped not only by the individual actor, but also by (differences in) planning culture.

Planning scholars and practitioners have increasingly recognized that culture matters. Cultural influences in planning and urban development processes mainly manifest in two aspects. First, the concept of planning culture is found useful in explaining the differences in planning practice between countries (Knieling & Othengrafen, 2009; Sanyal, 2005; Stead, De Vries, & Tasan-Kok, 2015). Second, when we consider possibilities of policy transfer, we must pay attention to the cultural embeddedness of the transferred policies (Stead, 2012). Several scholars have argued that formal institutional change does not necessarily lead to the expected change in planning actors' behaviour as cultural factors (for instance norms, intentions, traditions, etc.) are resistant to change (Buitelaar, Galle, & Sorel, 2011; Evers, 2015; Root, Van Der Krabben, & Spit, 2015).

Planning culture is a relatively new subject in planning literature (De Olde, 2015). Several scholars reflect on the current debate on planning culture and comparative planning by stating that this debate is still characterized by conceptual fuzziness (Booth, 2011; De Vries, 2015). Although several studies have broadened our understandings of planning culture's richness as well as complexity (see e.g. CULTPLAN, 2007; Keller, Koch, & Selle, 1996), the analytical power of planning culture comparison has been lacking. For Taylor (2013), the definition of planning culture is unsettled and left to interpretations by each researcher. This leads to a lack of conceptual precision, and makes systematic comparative research difficult (Buitelaar & Bregman, 2016). Fürst (2009) points out the methodological deficiency in comparative planning culture research, these being: the analysis of expert discourses; participating observations and expert experiences; and, dominantly, case studies. Although case studies provide rich materials for discussion, the operationalization and focus are still lacking (Buitelaar & Bregman, 2016). In addition, in terms of operationalization and focus, several authors have stressed the importance of studying planning actors and their interaction in planning decisions at the micro level (Ernste, 2012; Getimis, 2012; Othengrafen, 2014; Reimer & Blotvogel, 2012).

In this study, we aim at making planning cultures measurable and comparable. More specifically, we investigate how the concept of planning culture can be operationalized in order to develop a methodology to measure and compare planning cultures.<sup>1</sup> This attempt is inspired by Hofstede's work on comparative culture studies (1980, 2001) in which he operationalizes culture as a set of values and then compares values across different organizations and countries. In addition, economists have empirically studied the relationship between culture and economic outcomes through values and attitudes (Alesina & Giuliano, 2015; Guiso, Sapienza, & Zingales, 2006) and developed experiments

to capture cultural influences (Chuah, Hoffmann, Jones, & Williams, 2009; Henrich et al., 2001). Therefore, we adopt an operational definition of planning culture as *a set of values and attitudes shared by planning actors that is learned and sustained through the planning process*. As argued by Stead et al. (2015), some of the attitudes underlying the planning systems and the attitudes of the actors involved (e.g. preferences for individualism or collectivism) differ substantially. By planning actors, we mean planners working for public authorities as well as professionals active in property development.<sup>2</sup> Building on existing theoretical models – in particular, the culturized planning model (Knieling & Othengrafen, 2009, 2015) – we conduct game experiments derived from behavioural economics to observe values and attitudes of planning actors as operational indicators of planning culture. Compared to traditional comparative studies on values and attitudes using surveys, experiments are good at avoiding self-reporting biases. To test this approach, we chose three attitudes that are critical to decision-making in planning implementation: risk preferences, trust and propensity for co-operation. For comparative purposes, the three attitudes were measured in three European countries: Belgium (more precisely French-speaking Belgium), the Netherlands and Norway.<sup>3</sup> Many comparative and country-specific studies of land and property development in these three countries have stressed the importance of attitudes towards risks (e.g. Halleux, Marcinczak, & Van der Krabben, 2012; Valtonen, Falkenbach, & van der Krabben, 2017), trust (e.g. CULTPLAN, 2007; Höppner, 2009; Kadefors, 2004; Swain & Tait, 2007) and co-operation (e.g. Boxmeer & Beckhoven, 2005; Dethier & Halleux, 2014; Falleth & Nordahl, 2017; Halleux et al., 2012; Mäntysalo & Saglie, 2010; Nordahl, 2006; Van der Krabben & Jacobs, 2013; Verhage, 2002; Woestenburg, Van der Krabben, & Spit, 2018) in explaining outcomes of land and property development. Furthermore, decision-making in urban (re)development has become increasingly complex, which makes co-operation among stakeholders more or less the rule. Given that risk and trust attitudes have been found influential in co-operative behaviour in economics, understanding public and private planning professionals' risk, trust and co-operative attitudes thus becomes more relevant.

The remaining of the article consists of five sections. Section 2 presents the conceptual framework as a basis for the operationalization of the concept of planning culture, followed by a description of our experimental methods (section 3). The Results and Discussion sections present our empirical findings and deliberate the validity of our methodology, as well as the successes and limitations in operationalization (section 4 and 5, respectively). Section 6 concludes and points out future research questions.

## 2. A conceptual framework for planning culture operationalization

### 2.1 The culturized planning model (CPM) as a basis

In an attempt to address the challenges to theorize the concept of planning culture, Knieling and Othengrafen (2009) propose the culturized planning model (CPM) that offers a systematic conceptual framework in comparative planning culture studies. Their model analyzes planning culture at three levels according to 'the degree to which the cultural phenomenon is visible to the observer' (Schein, 2004): planning artefacts, planning environment and societal environment (Table 1). The three levels interact. On the one hand, visible planning artefacts (e.g. urban development patterns) are a result of the

**Table 1.** The culturized planning model (CPM) with its origins and elaborations.

The levels of culture	Organizational Culture (Schein, 2004)	Planning Culture (Knieling & Othengrafen, 2009)	Explanations (Stead et al., 2015)
Manifest	Artefacts	Planning artefacts	Physical urban developments; The organization of the planning process; The scope of planning
Manifest and non-manifest	Exposed beliefs and values	Planning environment	The core values, principles and conception of planning; The type of actors who have access to the planning process
Non-manifest	Underlying values and assumptions	Societal environment	More general, underlying norms, beliefs and perceptions of a particular society

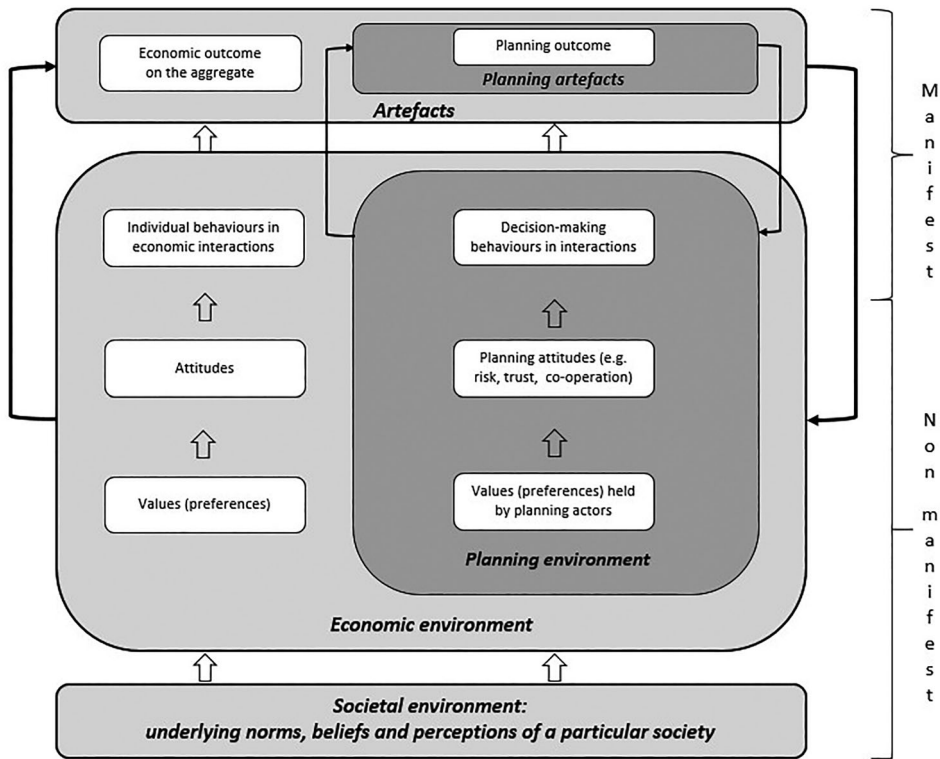
decisions made by value-holding actors in the planning environment, whose values are constantly influenced by more general values shared in the societal environment (Othengrafen, 2014). On the other hand, physical changes in the planning artefacts can also mould the perceptions of planning actors, which may affect general social norms (e.g. the deterioration of urban areas may lead to greater appreciation for change in planning policies among planning community and the society).

This model helps to fill in the analytical deficiency in comparative planning culture studies as it provides a systematic way to decompose cultural manifestations in planning at three interrelated levels. However, it is not immune to criticism and it is by no means the end of the story on the operationalization of the concept of planning culture. Getimis (2012) and De Olde (2015) argue for instance that CPM might be intellectually attractive but lacks explanatory power due to its abstract presentation. Moreover, important issues remain unaddressed with the model. For instance, in what way and to what extent do factors in societal environment influence elements in planning environment? And, to what extent are changes in planning artefacts attributable to changes in planning environment? Answers to these questions will help disentangle the complex relationship between culture and planning. However, the merit of this model as an analytical tool is also obvious: it simplifies the research work around the encompassing and complex concept of planning culture by separating the demanding effort for operationalization to different levels. It provides us with a good basis on which to position our focus of measurement.

Among the three levels of analysis of planning culture's manifestations, the planning environment in the middle can be considered as the key and the connecting layer. At this level, actors involved in planning absorb the underlying societal beliefs (input) and make the choices of policy responses and instruments (output, as well as planning outcome). However, the transformation from its input to output remains as a 'black box'. Given the central role of planning actors in the planning environment, we believe it is justifiable to focus our measurement of planning culture at this level of cultural manifestation.

## 2.2 Inside planning environment: values, attitudes and behaviours

In order to operationalize planning culture within the planning environment, we propose to build a link between its input and output through values-attitudes-behaviours relations (Figure 1), taken from relevant studies in economics and psychology. According to



**Figure 1.** The CPM-based framework that adds values, attitudes and behaviours within the planning environment.

Rokeach (1973, p. 5), values can be defined as ‘an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence’. Values, on the one hand, ‘are a result of all the cultural, institutional, and personal forces that act upon a person throughout his lifetime’ (ibid, p. 23); on the other hand, values are determinants and predictors of attitudes as well as behaviour (ibid, p. 18; Schultz & Zelezny, 1999). Note that values should not be confused with attitudes. Compared to values, attitudes are used to describe individuals’ evaluations of more specific entity (Rohan, 2000). Meanwhile actual values are invisible until they become evident in behaviour (Hofstede, 2001, p. 10).

Economists have argued that culture (using for instance religion and ethnicity as instrumental variables) impacts economic outcomes (for instance national savings rates) through values of individuals (such as preferences for thriftiness) (Alesina & Giuliano, 2015; De Jong, 2013; Guiso et al., 2006). It draws our interests in exploring whether there could be a similar connection between planning culture (defined as a set of values and attitudes of planning actors) and planning outcome (defined as choices of policy responses and instruments made by planning actors) through the values of planning actors.

This connection consists of two parts. First of all, cultural differences manifest in the different values of planning actors. As argued by Healey (1998), different stakeholders who come from different worlds hold different values and stakeholders’ interactions are

sensitive to cultural differences. Evidence is given by Read and Leland (2011) who show that American planners employed in the public and private sectors have different values towards competing interests in the planning process. Besides, cross-nationally, public planners are also found to have significantly different values relevant to planners' roles (Rodriguez & Brown, 2014). Though comparative evidence is limited, previous studies tend to emphasize both the value differences of planning actors between countries as well as between public and private sectors. Therefore in this study we explore both cross-country and public-private differences in planning culture.

Second, the relationship between values of planning actors and planning outcome is complicated. Although Reimer and Blotevogel (2012) perceive planning culture as a specific context in which 'the values and perceptive patterns of actors come together to influence actions', there is a lack of empirical evidence in planning literature to support this statement at both the macro and micro level. With respect to empirical evidence, psychologists pioneer in studying the complicated relationship between values and behaviour (see for instance Sagiv, Roccas, Cieciuch, & Schwartz, 2017). Behavioural economists build on insights from psychology to study actual behaviour of individuals and its determinants within the context of single- and multi-player games in controlled experiments. Values and attitudes are found to be explanatory variables of behaviour in experimental games (Camerer, Loewenstein, & Rabin, 2011).

Therefore, in our conceptual framework, the input and output of planning environment are connected: Planning actors absorb the underlying societal beliefs (input) and form their core values accordingly. These core values affect their attitudes and decision-making behaviours in interactions. Eventually, actors' interactions in different places, at different regulatory levels and even in different periods jointly determine the choices of policy responses and instruments (output and planning outcome) that shape the urban patterns and the planning process at the observable level. As a tunnel connecting the invisible societal environment to the visible planning artefacts, the planning environment can be both manifest (in terms of actors' decision-making behaviour) and non-manifest (in terms of actors' values).

Since we operationalize planning culture as shared values and attitudes among actors, we aim to measure the values and attitudes of planning actors. Particularly, we choose risk, trust and co-operative attitudes as variables in the measurement of the concept of planning culture. First, the three attitudes are of great importance to (interactive) planning decisions. Planning actors from different cultures may (in a more general way) value risk, trust and co-operation differently. The value differences, in turn, lead to different attitudes in some specific situations: for instance, whether to invest in high-risk but high-reward development projects, how much to invest in monitoring business partners and agents, and whether to co-operate or act alone when the relative benefits are uncertain. Second, these variables have been extensively studied in economics experiments (see, for instance, Holt and Laury (2002) for risk; Ostrom and Walker (2003) for trust; and Fischbacher and Gächter (2010) for co-operation). The established experimental methods, which are explained in detail in section 3, provide good tools to measure those variables. Last but not least, the three attitudes have also been compared in different countries and in different subject groups (Chuah et al., 2009). Existing comparative data may provide a good basis for validating our results. We acknowledge that there are other important cultural values manifesting in actor interaction, for instance



consensus-oriented vs outcome-oriented, person-oriented vs task-oriented, etc (Fürst, 2009, p. 26; Othengrafen, 2014). While these are also important and interesting indicators, they are hard to measure and thus lacking comparable evidence.

### 3. Methodology

In order to elicit planning and urban development professionals' attitudes towards risk, trust and co-operation, we have designed an experiment based on experimental practices in economics and earlier applications of these practices in planning research (Glumac, Han, Schaefer, & Van der Krabben, 2015; Samsura, 2013; Samsura, Van der Krabben, Van Deemen, & Van der Heijden, 2015). We also selected professionals working for either municipalities or commercial development and consultancy companies as the stakeholders in planning and property development processes. The experiment is therefore contextualized based on common planning and land development issues faced by municipalities and commercial developers in the three countries. This contributes to the external validity of the experiment.

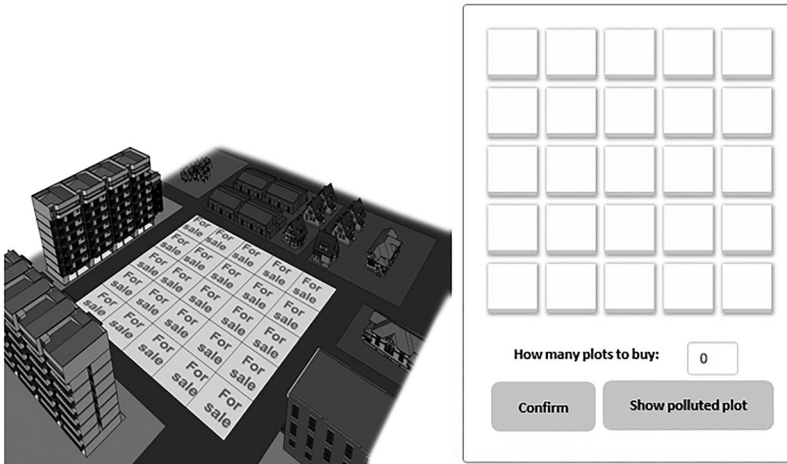
The experiment consists of three games associated to the three variables, namely *risk*, *trust*, and *co-operative attitudes*. After each game, participants were asked to fill in a short survey related to the topic and their socio-demographic characteristics. The experimental instructions were first formulated in English and then translated to the subjects' national languages: French,<sup>4</sup> Dutch and Norwegian.

All games are one-shot games,<sup>5</sup> which means that participants make the same decision only once. Although most experimental economic games are financially incentivized, we didn't follow this principle. Since our goal is to elicit only the *professional* preferences of practitioners, we decided not to provide monetary incentives, which may induce *personal* monetary preference. Besides we assured double-blind anonymity so neither experimenters nor peer participants would track answers from any participants to their identity.

#### 3.1 Design of the experiment

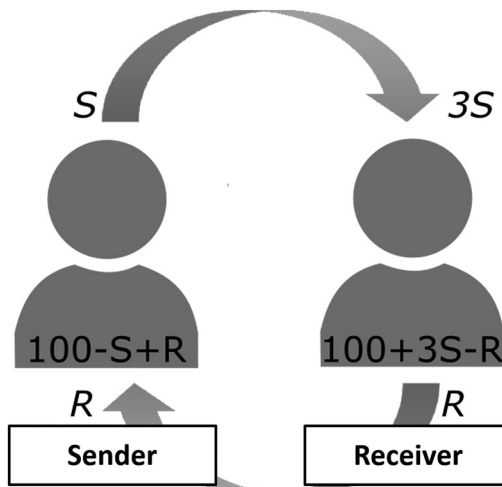
First, to elicit risk attitudes, we built a game based on the one-player Bomb Risk Elicitation Task (BRET) (Crosetto & Filippin, 2013). BRET is an established risk elicitation tool in experimental economics. We use it to elicit risk attitudes under a type of primary uncertainties in development: uncertainty in location conditions.

In our version of BRET, each participant chooses how many plots of land to buy and develop from a grid of 25 plots. They earn a profit of 20 points per plot. However, one unknown plot out of the 25 is contaminated. We assume that the clean-up fee of the contaminated plot is big enough to nullify all the potential earnings from development. If the contaminated plot is one of those chosen by the participant, (s)he will get zero; otherwise, her/his earnings equal the number of the plots (s)he buys multiplied by 20 points. Participants thus face the trade-off between a number of points they can earn and the likelihood of obtaining them. Since the expected utility maximizing amount is in the middle of the choice range (12.5), a risk-neutral subject should choose 12 or 13 plots to buy. The more plots they buy, the more risk-loving they are and vice versa. Figure 2 illustrates the game.



**Figure 2.** An illustration of BRET.

Second, to elicit trust attitudes, we follow the traditional design by Berg, Dickhaut, and McCabe (1995): a two-player sequential game to measure trust and reciprocity. Both players get 100 points at the start of the game. The first player (the sender) can decide to give some of the 100 points to the receiver. The sent amount ( $S$ ) is multiplied by 3. The receiver then decides from the tripled amount ( $3S$ ), how much ( $R$ ) he would like to return to the sender. At the end of the game, the sender gets  $100 - S + R$  and the receiver gets  $100 + 3S - R$  as illustrated in Figure 3. Given fully rational players who are driven by utility maximization, the theoretical prediction of this game is that  $R$  will be zero as the receiver has no incentive to return anything to the sender. If the sender predicts this,  $S$  is also zero. The sent amount  $S$  indicates how much trust the sender places in the receiver and the return amount  $R$  indicates how much reciprocity the receiver repays to the sender for her/his trust. Reciprocity is a key facilitator of trust



**Figure 3.** An illustration of trust game.

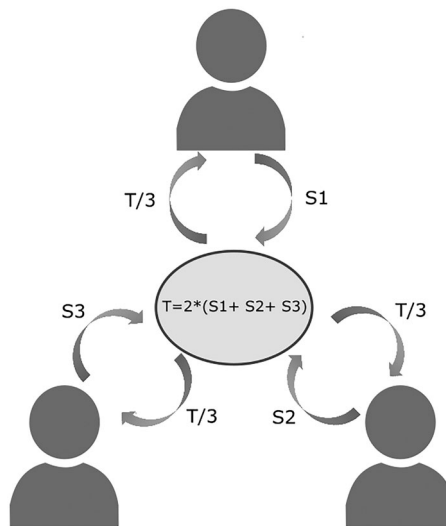
but not in itself important for us. We, therefore, let all players be in the sending position and told them they are playing against a hypothetical private developer or public planner. In order to measure whether the trust attitudes towards different partners vary between public and private actors, we designed four treatment groups: Public vs Private (MP), Public vs Public (MM), Private vs Private (PP), and Private vs Public (PM). The treatment groups MP and MM were played with public participants who are representing municipal planners (M), while PP and PM were played with private participants who represent private developers (P).

Last, to elicit co-operative attitudes, we use Ledyard's (1995) public goods game in a development context. Three players play as independent developers in a neighbourhood. Each developer gets an endowment of 100 points. They choose how much to invest in a neighbourhood improvement project independently ( $S_1, S_2, S_3$ ). The total investment is doubled and then shared evenly by the developers. For each player, the earnings equal to a third of the doubled total investment plus whatever (s)he kept. Because the marginal per capita return from the public goods is lower than 1, no matter what the other players do, the best strategy for any fully rational player is to contribute nothing. The group as a whole would, however, be best off if all invest 100 points. The investment amount of players indicates their propensity for co-operation. This game is illustrated in Figure 4.

Like in the trust game, in order to measure whether the co-operative attitudes of municipal planners (M) and private developers (P) are different towards different partners, we designed four treatment groups: MPP, MMM, PPP and PPM. The participants were told that they are playing with two other hypothetical private and/or public participants.

### 3.2 Participants and procedure

The experiments were conducted in the three countries from June 2016 to June 2017. We used two venues of gathering subjects. First, we contacted approximately 8,500 persons by



**Figure 4.** An illustration of public goods game.

emails through professional networks, in which 298 (3.5%) responded and 244 (2.9%) completed the session. We also followed up about 100 emails with phone calls to members of the less populated cohorts (the municipal planners or the private developers depending on the countries). Second, we invited the participants of four planning and development conferences to participate as part of the events, which yielded 195 respondents out of 277 attendees (70%). The participants who were reached through emails played the games on Qualtrics, Google Forms or GXP,<sup>6</sup> while the conference participants played online on SurveyMonkey or used physical handouts. The participants were instructed not to communicate with each other during the experiment.

## 4. Results

### 4.1 Risk game – Bomb risk elicitation task (BRET)

This game elicits the risk attitudes of players by providing them with a trade-off between maximizing profits and minimizing risks, with the risk-seeking players taking more than 13 plots. Table 2 shows the results of our BRET game.

Nonparametric tests results<sup>7</sup> (not presented here, but available from the authors upon request) show that Dutch, Belgian and Norwegian participants can all be categorized as risk-averse on average. Dutch participants are most risk-averse, followed by Belgians and lastly Norwegians. Cross-country difference is significant. In terms of pairwise comparisons, Norwegian participants are significantly different from Belgian and Dutch participants, while differences between Belgian and Dutch participants are not significant.

Previous cultural studies have shown that Belgians have a much stronger preference for uncertainty avoidance than Dutch and Norwegians (Hofstede, 2001, p. 151). Our results partially verify this for private actors, while only the high risk aversion of Dutch public professionals contradicts it. Since Dutch municipalities have invested heavily in the land market for decades but suffered great losses in the 2008 financial and economic crisis, Dutch municipal planners' present risk aversion can, therefore, be interpreted as a 'response' to these losses (Van der Krabben & Jacobs, 2013).

Regarding public-private differences, public and private participants in both Norway and Belgium show no difference in risk attitudes, while public participants in the Netherlands are significantly more risk-averse than their private counterparts. Therefore only our Dutch data demonstrate Klijn and Teisman (2003)'s arguments that public professionals

**Table 2.** Levels of risk attitudes in Belgium, the Netherlands and Norway.

Country	N	Mean	Type classification (%)		
			Averse	Neutral	Loving
<i>Belgium</i>	<b>79</b>	<b>10.14</b>	<b>61</b>	<b>19</b>	<b>20</b>
Public	25	10.20	60	16	24
Private	54	10.11	61	20	19
<i>The Netherlands</i>	<b>74</b>	<b>8.91</b>	<b>73</b>	<b>14</b>	<b>14</b>
Public	43	7.84	84	2	14
Private	31	10.39	58	29	13
<i>Norway</i>	<b>90</b>	<b>11.99</b>	<b>41</b>	<b>24</b>	<b>34</b>
Public	50	12.30	38	28	34
Private	40	11.60	45	20	35
TOTAL	243	10.45			

value risk avoidance more than private professionals. As mentioned, this difference might be intensified by the impact of the 2008 financial crisis on the budgets of the Dutch municipalities.

#### 4.2 Trust game

Table 3 presents trust levels among our subjects. It shows that Dutch and Norwegian participants exhibit more trust than Belgian participants. Overall, it demonstrates that trust among planning actors is not high.<sup>8</sup>

Our cross-country data is consistent with the findings from several large, influential value surveys among the general population. For instance, the European Values Study 2008<sup>9</sup> shows that 62% of Dutch and 75% of Norwegian participants think most people can be trusted, while only 27% of French-speaking Belgian think the same. For the whole of Belgium, the percentage is 35%. It is also consistent with the European Social Survey 2014,<sup>10</sup> which uses the same question but has numeric value: general trust in Norway (6.62) and Netherlands (5.97) is above an European average (5.21), while trust level in Belgium (5.02) is below average.

The Dutch and Norwegian MP results are also consistent with Sager (2009): Norwegian planners are less in favour of private developers than Dutch planners. However, the Dutch and Belgian PM results do not support the observations that there is a fundamental distrust to planning in Belgium and a general trust to planning in the Netherlands (De Vries, 2015; Faludi, 2005).

When we take a closer look at public-private differences, we find that Dutch public participants trust more than Dutch private participants. In contrast, Norwegian public participants trust less than Norwegian private participants, while Belgian participants show no difference in trust levels. The Dutch results confirm the findings from Public-Private Partnerships in Dutch urban development projects in which both public and private actors hold bias and distrust towards one another (Heurkens, 2012, p. 32). This corresponds to the common finding that people tend to be more trusting towards people from their own group (Tanis & Postmes, 2005).

In clear contrast, the Belgian results show the opposite: both public-public and private-private trust are lower than trust in the mixed group, of which private-private trust scored the lowest of all treatment groups. This may be the result of the group composition.

**Table 3.** Levels of trust attitudes in Belgium, the Netherlands and Norway.

Country	N	Mean	Treatment groups (M = Municipality; P = Property developer)			
			MM	MP	PP	PM
<i>Belgium</i>	<b>71</b>	<b>42</b>				
Public	27 (14, 13)	43	40	46	–	–
Private	44 (23, 21)	42	–	–	37	48
<i>The Netherlands</i>	<b>47</b>	<b>52</b>				
Public	30 (15, 15)	54	61	47	–	–
Private	17 (9, 8)	49	–	–	51	46
<i>Norway</i>	<b>140</b>	<b>51</b>				
Public	42 (22, 20)	46	49	43	–	–
Private	98 (53, 45)	53	–	–	51	55

Note: Detailed treatment group size is shown in parentheses.

Indeed, in the survey that we made after the trust game, we have noticed that the participants in the PP group are found more trusting in other people. We, therefore, attribute the unexpected low PP trust to a statistical anomaly due to our small sample size. Besides, trends in Norwegian results reveal private actors' trust towards public actors. This reflects the findings of the European Social Survey (2014) regarding trust in the general population and towards the bureaucracy.

When we compare the treatment group of MM in three countries, we can see that public participants in the Netherlands trust their partners from the same sector much more than those in Belgium and Norway. In all three countries public participants show low trust towards partners from the private sector. When we compare PP numbers, private participants in Belgium show the least trust. Lastly, private participants' trust in Norway towards a public partner is higher than the same group for the Netherlands and Belgium.

### 4.3 Public goods game

Based on the results of our public good game as shown in Table 4, we find that participants in all three countries are more co-operative than the average found in economic experiments, where roughly 50% of endowments are contributed in one-shot games (Levitt & List, 2007). Norwegian participants are even more co-operative than the Dutch and Belgian participants.

Taking a closer look at public-private differences, we find that Dutch public participants contribute more than Dutch private participants, whereas the Norwegian and Belgian public and private participants show no difference in average contributions. When we compare treatment groups of MMM in three countries, we can see that public participants in all countries show similarly high levels of co-operation with other public partners. This may serve as supporting evidence to a widespread inter-municipal co-operation phenomenon throughout Europe (including the Netherlands and Belgium), as discussed in Hulst and Van Montfort (2012).

In the case of MPP, the level of co-operation slightly declines: Belgian and Norwegian public participants show lower co-operative attitudes towards private partners, but Dutch public participants co-operate the same when we tell them they play with private partners. This corresponds to the statement by Halleux et al. (2012) who argue that Belgian

**Table 4.** Levels of co-operative attitudes in Belgium, the Netherlands and Norway.

Country	N	Mean	Treatment groups (M = Municipality; P = Property developer)			
			MMM	MPP	PPP	PPM
<i>Belgium</i>	<b>41</b>	<b>54</b>				
Public	16 (8, 8)	55	59	51	–	–
Private	35 (15, 20)	54	–	–	48	62
<i>The Netherlands</i>	<b>39</b>	<b>57</b>				
Public	25 (13, 12)	61	61	61	–	–
Private	14 (8, 6)	50	–	–	55	43
<i>Norway</i>	<b>236</b>	<b>61</b>				
Public	93 (81, 12)	61	62	55	–	–
Private	143 (98, 45)	61	–	–	62	60

Note: Detailed treatment group size is shown in parentheses.

municipalities are much more reluctant than their Dutch peers to co-operate with private developers. Meanwhile, since Norwegian planners are more in disfavour of private developers than Dutch planners (Sager, 2009), it also makes sense that their co-operative attitudes towards developers are lower than those of their Dutch peers.

When we compare PPP groups, private participants in Norway show the highest level of co-operation with private partners, and Belgians the lowest. In PPM groups, Dutch private participants tend to co-operate less when they interact with public partners (lowest overall). Belgian private participants tend to co-operate more in this treatment group than any other.

Lastly, as trust and cooperation are two focal and mutually reinforcing elements in planning (Kumar & Paddison, 2000) as well as in general social science (Gächter, Herrmann, & Thöni, 2004; Ostrom & Walker, 2003), we also tested the correlation between trust and cooperation in the Dutch and Norwegian data.<sup>11</sup> The results show that they are positively correlated ( $p < 0.01$ ). This indicates the importance of trust in planning as ‘trust functions as an assumption and as a developer of co-operation (the more trustful behaviour is, the more intensive co-operation is possible)’ (CULTPLAN, 2007).

In summary, our experimental results reveal the attitudinal differences in decision-making in planning between the three countries as well as between public and private actors in each country. The highlights of our findings are summarized in Table 5.

## 5. Discussion

The main contribution of this paper is to offer experimental games as a measurement tool (as a complement to CPM as an analytical tool) of planning culture. We have operationalized and measured planning culture through three attitudes. In this section, we will look critically at the internal and external validity of our experimental results and discuss the appropriateness of the operationalization.

### 5.1 Measurement: internal and external validity of the experiment

Experimental studies are commonly evaluated by two criteria: internal and external validity. First, internal validity refers to the reliability of the causal relationship established in the experiment between independent and dependent variables. In our experiment, the independent variables are country and sector, while the dependent variables are risk, trust and co-operative attitudes. The internal validity issue relates to the confounding threat which suggests that a third variable may explain the relationship between an independent and dependent variable. In the context of our experiment, the potential impact of socio-demographic variables such as income, age, gender, working experience, or size of employment organization may raise concerns. Due to the limited size of our three national samples, the data were not rich enough to run robust statistical analysis to test the potential impact of socio-demographic variables. However, Van der Wal, De Graaf, and Lasthuizen (2008) find that value preferences are primarily attached to the sector (public vs private) rather than other socio-demographic characteristics, based on a related survey with a larger number of professionals from public and private sector organizations.

In terms of internal validity, another methodological issue relates to the professional implication of some of the respondents. This problem was put forward by the fact that,

**Table 5.** Highlights of risk, trust and co-operative attitudes in Belgium, the Netherlands and Norway.

Country	Differences	Risk attitudes	Trust attitudes	Co-operative attitudes
Belgium (BE)	Cross-country	<ul style="list-style-type: none"> <li>• Medium risk-averse</li> <li>• Difference between BE and NL is not significant</li> <li>• BE public is medium risk-averse, but not significantly different from NO public</li> <li>• BE private is most risk-averse, but not significantly</li> </ul>	<ul style="list-style-type: none"> <li>• Least trust</li> <li>• MM: lowest</li> <li>• MP: similar to NL and higher than NO</li> <li>• PP: lowest of overall</li> <li>• PM: medium</li> </ul>	<ul style="list-style-type: none"> <li>• Least co-operative</li> <li>• MMM: similarly high level of co-operation</li> <li>• MPP: lowest</li> <li>• PPP: lowest</li> <li>• PPM: highest of overall and similar to NO</li> </ul>
	Public-private	<ul style="list-style-type: none"> <li>• Public is less risk-averse than private, but not significantly</li> <li>• Very similar in risk categories</li> </ul>	<ul style="list-style-type: none"> <li>• No public-private difference</li> <li>• MM &lt; MP</li> <li>• PP &lt; PM</li> </ul>	<ul style="list-style-type: none"> <li>• No public-private difference</li> <li>• MMM &gt; MPP</li> <li>• PPP &lt; PPM</li> </ul>
The Netherlands (NL)	Cross-country	<ul style="list-style-type: none"> <li>• Most risk-averse</li> <li>• Difference between NL and BE is not significant</li> <li>• NL public is significantly more risk-averse than BE and NO public</li> <li>• NL private is medium risk-averse, but not significantly</li> </ul>	<ul style="list-style-type: none"> <li>• More trusting than BE and similar to NO</li> <li>• MM: highest of overall</li> <li>• MP: similar to BE and higher than NO</li> <li>• PP: highest and similar to NO</li> <li>• PM: lowest</li> </ul>	<ul style="list-style-type: none"> <li>• Medium co-operative</li> <li>• MMM: similarly high level of co-operation</li> <li>• MPP: highest</li> <li>• PPP: medium</li> <li>• PPM: lowest of overall</li> </ul>
	Public-private	<ul style="list-style-type: none"> <li>• Public is significantly more risk-averse than private</li> </ul>	<ul style="list-style-type: none"> <li>• Public show higher trust than private</li> <li>• MM &gt; MP</li> <li>• PP &gt; PM</li> <li>• MP = PM</li> </ul>	<ul style="list-style-type: none"> <li>• Public co-operate more than private</li> <li>• MMM = MPP</li> <li>• PPP &gt; PPM</li> </ul>
Norway (NO)	Cross-country	<ul style="list-style-type: none"> <li>• Least risk-averse</li> <li>• Significantly different from BE and NL</li> <li>• NO public is least risk-averse, but not significantly different from BE public</li> <li>• NO private is least risk-averse, but not significantly</li> </ul>	<ul style="list-style-type: none"> <li>• More trusting than BE and similar to NL</li> <li>• MM: medium</li> <li>• MP: lowest</li> <li>• PP: highest and similar to NL</li> <li>• PM: highest</li> </ul>	<ul style="list-style-type: none"> <li>• Most co-operative</li> <li>• MMM: similarly high level of co-operation, highest of overall</li> <li>• MPP: medium</li> <li>• PPP: highest of overall</li> <li>• PPM: highest and similar to BE</li> </ul>
	Public-private	<ul style="list-style-type: none"> <li>• Public is less risk-averse than private, but not significantly</li> </ul>	<ul style="list-style-type: none"> <li>• Public show lower trust than private</li> <li>• MM &gt; MP</li> <li>• PP &lt; PM</li> </ul>	<ul style="list-style-type: none"> <li>• No public-private difference</li> <li>• MMM &gt; MPP</li> <li>• PPP &gt; PPM</li> </ul>

in the risk game, some participants chose 0 or 25 plots to buy, which results in an automatic payoff of zero! Thanks to the short survey the participants had to fill in after the game, we realized that this type of answer was not caused by a misunderstanding of the game but, instead, by a professional judgement. Indeed, some of the public participants who chose 25 justified their choices with the arguments that the municipality does not aim for financial profits and that addressing soil contamination is a public task. In parallel, some of the private participants who chose 0 explained their motivations by the fact that they consider the transfer of risk from seller to buyer as unreasonable. In relation to this point, it must be noted that the answers of 0 and 25 plots were not considered in the quantitative analyses.

Second, a common critique of an experimental approach is its limited generalizability (external validity). In this respect, we shall discuss whether our sample is representative of



the three considered planning environments. To do so, we discuss below the issue of the sampling bias and the issue of the abstract versus planning-relevant context.

Unlike most experimental economic games which recruit student subjects, this experiment was conducted with planning and development practitioners. We do this to ensure the generalizability of our results to planning actors. Though our sample size is relatively low, we have tried to reach participants through many channels. Based on the available demographic data, we regard the representativeness of our three national samples as acceptable. However, the ultimate test of an experiment's external validity is replication.

The most significant alteration we made compared to the typical economics experiments is that we frame the context with common planning-relevant issues in the three countries. Deviating from the often abstract framing in economics, our experiment intentionally provides a familiar context for our participants, as endorsed by Loewenstein (1999). We asked the participants to reflect upon their professional roles as much as possible. On the one hand, since we frame hypothetical settings without explicit wordings like risk, trust and co-operation, it reduces some self-reporting bias found in common survey research. We are confident that participants reveal their *honest* inclinations. On the other hand, to ensure coherence and comparability, we keep the game instructions as close as possible to the original, abstract games. It is possible that some subjects misunderstood our instructions. However, a richer context may hamper the control of experiment as subjects may make decisions as a response to factors that are not intended by experimenters (Levitt & List, 2007). The balance between rich and abstract context is a challenge to any planning experiments.

## 5.2 Operationalization of planning culture

Our measurement of planning culture is based on how we operationalize the concept. The CPM-based conceptual framework provides the basis for measuring planning cultures. The framework attempts to complement the CPM's explanatory power at the micro level by arguing that planning actors' behaviour in interactions can be explained by their values and attitudes. This is in line with the arguments in Reimer and Blotvogel (2012) that planning cultures are established through concrete forms of planning action, which are the consequence of the specific values and orientations of the actors involved. Here we discuss risk, trust and co-operative attitudes of actors involved in planning and development as operational variables of planning culture.

Firstly, we have used attitudes to infer values. It can be summarized from Table 5 that Dutch planning actors value risk aversion and trust; Norwegian planning actors value co-operation; while Belgian planning actors have a lower score of these values when compared to the other countries. This empirical evidence is largely in line with observations and discourses of national cultures in the three countries. We could, therefore, state that as 'culture manifests itself in values' (Hofstede, 2001, p. 10) and 'values are among the building blocks of culture' (Hofstede, 1980, p. 25), there is also a similar relationship between planning culture and values of risk, trust and co-operation.

Nevertheless, it seems rather speculative to confirm this statement. One reason is that 'both the formal rules and the informal constraints are embodied in attitudes and values' (North, 1990, p. 136). It would be arbitrary to attribute attitudinal differences to simply cultural differences, without taking into account formal institutional influences.

Although we have controlled that all participants read the same instructions and therefore all differences are due to intrinsic differences in their mind-sets, it is beyond this research to investigate *why* and *how* actors in three countries have formed different attitudes. The planning systems in Belgium, the Netherlands and Norway vary in what prominence market actors have in planning implementation and in implementing power held by the public. These differences most likely influence actors' experiences and attitudes in the public – market interaction. It is however not our task to explain the differences. We have, however, successfully measured planning culture as it is narrowly defined here, and provided numerical data for actors' different attitudes in planning interactions.

Secondly and by acknowledging the previous limitation, based on the empirical evidence, we move a small step forward towards the understanding of the planning environment identified in the culturized planning model. The approach taken has shown a direct impact of culture on values and attitudes of planning actors across countries and between sectors. With our experiment, we capture the attitudinal part of planning culture to some extent. However, we also admit that the whole spectrum of planning culture is too rich to be fully captured. To maintain the focus of measurement, other elements within planning environment as well as factors in societal environments and planning artefacts have been omitted. Therefore we reiterate that improving the explanatory power of the concept is not what we aim for. With the help of the conceptual framework, future studies on planning actions and planning practices can build on our attitudinal results to find explanations for planning behaviours. This is also a response to call for more studies on behavioural aspects of actors in planning (Othengrafen, 2014; Reimer & Blotevogel, 2012; Samsura, Van der Krabben, & Van Deemen, 2010).

## 6. Conclusion

This research started from a curiosity to understand how culture impacts planning. As a response to a bunch of literature criticizing the vague comparisons of planning cultures, we borrowed economic experimental games to measure planning culture. Our study demonstrates how planning culture can be measured and compared systematically through risk, trust and co-operative attitudes. With the help of the comparability and replicability advantages entailed in experimental games (Camerer & Fehr, 2004), this paper contributes to the debate with introducing this systematic measurement tool (Croson & Gächter, 2010), verified by empirical evidence from three European countries.

We are aware that our results involve limitations, mainly focused on experimental practicalities. The samples were small and uneven. Moreover, it should be noted that in this research we mainly focus on measuring planning actors' attitudes towards risk, trust and co-operation as a bridge between planning culture and planning outcome by using experiment as a tool. We have not discussed other important elements of culture, for instance norms and traditions. However, based on the empirical evidence collected in Belgium, the Netherlands and Norway, we have demonstrated that planning culture can be measured and compared by testing carefully selected variables in an experiment. The experiment can be replicated in more countries and statistical analyses can be carried out with larger sample sizes. It is also meaningful to repeat the experiment in a later

period to track changes in planning culture over time or after a critical event. We hope that these results can trigger more debates on the relationship between planning culture and planning outcome.

As a final point, two main reflections can be drawn from our study to prepare a future research agenda. Firstly, it will be interesting to see whether the measured preferences of Dutch municipal planners for the avoidance of uncertainty will persist even when the land and property markets remain stable for a long period of time (as is more or less the situation since 2014). Secondly, the breakdown of results between French-speaking Belgium, on the one hand, and the Netherlands and Norway, on the other hand, may invite complementary investigations in other countries. Those investigations should be designed to evaluate whether collaborative planning practices are feasible within a low-trust society. It would also be interesting to explore the relations between these cultural factors and the legal and administrative planning families identified in (Newman & Thornley, 1996), as a complement to discussions about formal and informal logics of planning action (Reimer & Blotevogel, 2012).

## Notes

1. Please note that our meaning of operationalization is in line with the traditional understanding of operationalization which is the process of strictly defining variables into measurable factors. This process is driven by our aim to make planning cultures *measurable*. In contrast, this approach differs from other operational studies in comparative planning cultures (e.g. Getimis, 2012) which focus on *comparability* of planning cultures.
2. We admit that there are other kinds of planning actors for instance landowners, investors, politicians, etc. For the sake of testing the experimental approach, we focus on the most representative subject groups in public and private sectors.
3. The selection of the three countries is in fact based on practical reason in which the authors are all involved in a research project due to their shared research interests. Nevertheless, the fact that these countries actually also have different planning systems (see e.g. Dubois, Gabriel, Halleux, & Michel, 2002 for BE, Needham, 2016 for NL, and Falleth & Nordahl, 2017 for NO) and that they are somewhat moderately close with each other in terms of culture (as European countries), has made the comparison interesting and more reasonable.
4. The games were played by French-speaking subjects from Brussels and Wallonia. Our results therefore do not speak of the reality for the Dutch-speaking population of Belgium.
5. Compared to repeated games that test learning effects, one-shot games are used to elicit subjects' intrinsic motivations in making decisions. This is a common approach in social preference experiments to exclude strategic motivations like reputation building in repeated games (Levitt & List, 2007).
6. GXP (<https://gxpfoundation.wordpress.com/>) is an online experimental platform that supports research in human behaviour. Experimental sessions on GXP are programmed in Otree (Chen, Schonger, & Wickens, 2016; Holzmeister & Pfurtscheller, 2016).
7. We specifically used the Mann-Whitney U Test. We used the non-parametric test to compare differences between independent groups because we do not make any assumption about the distribution of the data.
8. Based on the average sent amount found in economics experiments which is roughly 50% of the endowment (Levitt & List, 2007).
9. <https://www.gesis.org/en/services/data-analysis/international-survey-programs/european-values-study/>.
10. <http://www.europeansocialsurvey.org/downloadwizard/>.
11. This test could not be done for Belgium as the two games were played by different subjects.

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