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**Timing and Distributional Aspects of Transaction Costs in**

**Transferable Development Rights Programmes**

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**Abstract**

Planners are required to evaluate planning policy instruments to develop a better understanding of how they can improve their policy design and implementation processes. Transferable Development Rights (TDR) programmes are one of the market-based policy instruments that have attracted considerable attention among planners and economists. Given that TDR programmes have been introduced as an alternative to traditional regulatory instruments in several jurisdictions on the basis that their implementation will result in better policy outcomes, evaluation of these alternative programmes is particularly important. Like all policy instruments, the activities concerned with the design and implementation of TDR programmes may involve significant transaction costs. These activities can be considered as a series of transactions from the perspective of Transaction Cost Economics (TCE). While transaction costs are expected to vary across the lifecycle of a policy instrument, up to now there have been no systematic research studies concerned with why, and how, such transaction costs occur and are distributed among parties involved in different phases of TDR programmes. So as to aid better design and implementation of TDR programmes, this paper analyses the effects of transaction costs throughout the life of four TDR programmes (Calvert, Montgomery, St. Mary’s, and Charles Counties) in the US state of Maryland in order to gain a better understanding of the timing and distribution of such costs incurred by different parties involved.

**Keywords:** Transferable Development Rights (TDR), Transaction Cost Economics (TCE), Planning Policy Instruments, Institutional Design and Arrangements, Policy Lifecycle.

1. **Introduction**

Regulatory policy instruments, such as zoning and development control, have traditionally been the dominant approach in achieving planning objectives. However, having recognised the drawbacks of these instruments, an increasing number of economists and planners have been proposing the implementation of the alternative market-based approach ([Janssen-Jansen et al., 2008](#_ENREF_29), [Micelli, 2002](#_ENREF_46), [Turk and Demircioglu, 2013](#_ENREF_68), [Clinch et al., 2008](#_ENREF_14)). Market-based instruments (MBIs) are broadly defined as those policy instruments that *“encourage behaviour through market signals rather than through explicit directives”* (Stavins, 2001, p.1). Unlike traditional regulatory instruments, market-based instruments aim to achieve targets by harnessing the self-interest of agents. Therefore, they change the costs and benefits of agents’ actions by making preferred social and environmental outcomes financially more attractive ([OECD, 1999](#_ENREF_51)). There is an argument that, not only are market-based instruments more statically (least cost) and dynamically (encourage continuous improvement) efficient and more equitable (because of the automatic or optional redistribution mechanism), but they are also associated with fewer transaction costs in comparison to traditional regulatory instruments ([Stavins, 2001](#_ENREF_63), [Jaffe and Stavins, 1995](#_ENREF_28), [Lockie, 2013](#_ENREF_35), [Whitten et al., 2003](#_ENREF_71), [Hahn and Stavins, 1992](#_ENREF_26)).

The Transferable Development Rights (TDR) approach is one of the market-based land-use policy instruments that has recently received considerable attention in a number of countries ([Janssen-Jansen et al., 2008](#_ENREF_29), [Spaans et al., 2011](#_ENREF_62), [Shahab and Azizi, 2013](#_ENREF_60), [Wang et al., 2010](#_ENREF_70)). TDR programmes are multi-objective instruments and have been implemented to address different land preservation and development objectives ([Pruetz and Pruetz, 2007](#_ENREF_54)). TDR programmes use a zoning system to designate areas for preservation and development. Within these programmes, development rights can be transferred from so-called ‘sending areas’ that are undesirable or less desirable for development from a public-policy perspective, to designated areas for development that are called ‘receiving areas’. Landowners of sending areas receive a payment or other types of compensation for the sale of development rights of their properties. Developers, on the other hand, can purchase additional development rights from sending areas, if they wish to develop beyond a specific permitted level in receiving areas ([Machemer and Kaplowitz, 2002](#_ENREF_36), [Nelson et al., 2011](#_ENREF_48)). Therefore, through providing the restricted landowners with an opportunity to sell their development rights and capture some windfall gains, TDR programmes distribute the costs and benefits of regulations in a more equitable manner ([Thorsnes and Simons, 1999](#_ENREF_67), [Clinch and O'Neill, 2010](#_ENREF_13), [Pruetz, 2003](#_ENREF_53)).

Some researchers have attempted to study the factors affecting TDR success ([Chan and Hou, 2015](#_ENREF_10), [Kaplowitz et al., 2008](#_ENREF_31), [Pruetz and Pruetz, 2007](#_ENREF_54), [Machemer and Kaplowitz, 2002](#_ENREF_36), [Aken et al., 2008](#_ENREF_3)). While transaction costs, and other institutional aspects of a policy, can affect efficiency, effectiveness and equity of any policy instruments ([McCann, 2013](#_ENREF_39), [Buitelaar, 2007](#_ENREF_9), [McCann et al., 2005](#_ENREF_40), [Dawkins, 2000](#_ENREF_18), [Qian et al., 2013](#_ENREF_56)), so far, there has been relatively little research about institutional aspects and the related transaction costs of TDR programmes. Some researchers argue that, while in theory, TDR programmes should lead to low transaction costs ([Micelli, 2002](#_ENREF_46), [Field and Conrad, 1975](#_ENREF_24)), in practice, such transaction costs concerned with the design and implementation of these programmes can be very high ([Bruening, 2008](#_ENREF_8), [Janssen-Jansen, 2008](#_ENREF_30), [Messer, 2007](#_ENREF_44), [Arendt, 2004](#_ENREF_7), [Chomitz, 2004](#_ENREF_12)). The activities associated with the design and implementation of TDR programmes, similar to any other policy instruments, involve many transaction costs. Such transaction costs, on the one hand, vary across time (i.e. the lifecycle of a policy instrument), and on the other hand, are expected to be distributed unevenly among the parties involved in and interacting with the policy ([Coggan et al., 2010](#_ENREF_17)).

In this paper, we address these gaps by analysing the process of designing and implementing TDR programmes through the lens of Transaction Cost Economics (TCE). The objectives of this paper are; firstly, to highlight the importance of taking account of transaction costs, as well as other institutional aspects, in evaluating TDR programmes to assist in improving the efficacy of these policy instruments; and secondly, to analyse when transaction costs arise and by whom such costs are incurred. Taking this approach, this paper thereby investigates the effects of transaction costs in different phases of designing and implementing TDR programmes, and also examines the distribution of such costs among different parties involved, including landowners, developers, and local authorities. In line with the TCE literature, this paper considers the activities concerned with the design and implementation of TDR programmes as a series of transactions. Such an approach has been used in several other studies ([Alexander, 2001b](#_ENREF_5), [Alexander, 2001a](#_ENREF_4), [Cho, 2011](#_ENREF_11), [Tan et al., 2012](#_ENREF_64), [Thompson, 1999](#_ENREF_65), [Whittington and Dowall, 2006](#_ENREF_72)), but it has not been applied in the study of a planning policy instrument, such as TDR. To this end, we briefly review the previous studies concerning TDR evaluations, as well as the literature on TCE. Then, through identifying transactions in the process of designing and implementing TDR programmes, this paper analyses the distribution and timing of related transaction costs arising in each phase of this process.

1. **Evaluation of Transferable Development Rights (TDR) Programmes**

Since the introduction of TDR programmes as planning policy instruments in the late 1970s and early 1980s ([Renard, 2007](#_ENREF_57)), some researchers have attempted to evaluate these programmes. [Machemer and Kaplowitz (2002)](#_ENREF_36), for example, developed an evaluative framework through identifying and classifying TDR programmatic characteristics. This framework consists of 13 elements within three themes of regulatory, community, and programme characteristics. Besides, by studying the TDR success factors in three common traits of sending areas, receiving areas, and incentives, [Pruetz and Pruetz (2007)](#_ENREF_54) argue that strong public support is the main factor in any successful TDR programme. In a more recent study, [Chan and Hou (2015)](#_ENREF_10) focus on developing a framework to assess the factors affecting TDR success. Likewise, some other researchers discuss the conditions that improve the functioning of TDR markets and identify the key attributes involved with TDR success ([Kaplowitz et al., 2008](#_ENREF_31), [Aken et al., 2008](#_ENREF_3), [McConnell and Walls, 2009](#_ENREF_42)).

A review of the literature on the evaluation of TDR programmes shows that most studies have taken a conformance-based evaluation approach. According to this approach, the success or failure of TDR programmes is based on the degree of conformity between outcomes of an implemented programme and its specified objectives ([Faludi, 1989](#_ENREF_23), [Shahab et al., 2017](#_ENREF_61)). In other words, a TDR programme is considered to be a successful programme if it has achieved its stated policy objectives. For example, [Machemer and Kaplowitz (2002)](#_ENREF_36) define the degree of success of a TDR programme based on the number of completed TDR transactions and the number of acres preserved. This approach has at least two main drawbacks. The first drawback is that the specified policy objectives are not necessarily all the outcomes of a policy ([Shahab et al., 2017](#_ENREF_61)). While evaluating such criteria is necessary, it is not always sufficient, largely because of side-effects ([Mickwitz, 2013](#_ENREF_47)). Thus, conformance-based evaluation only enables planners to evaluate partial outcomes of programmes (i.e. the intended outcomes). The second drawback is that this approach usually neglects to take account of transaction costs, and other institutional aspects, in the design and implementation of programmes, despite their importance for the success or failure of any policy instrument. This paper focuses on an aspect of the second drawback of the conformance-based approach that has, thus far, received little attention in TDR studies, namely, institutional aspects of the design and implementation of TDR programmes.

1. **Transaction Cost Economics**

As one of the central concepts and significant contributions in New Institutional Economics (NIE), ‘transaction costs’ were conceptually introduced by Nobel Laureate Ronald Coase ([1937](#_ENREF_15)) in his seminal paper ‘The Nature of the Firm’ as simply ‘the cost of using the price mechanism’. The concept has since been used in different meanings and scopes, from ‘the cost of exchanging ownership titles’ ([Demsetz, 1969](#_ENREF_20)), to a much broader concept to be used in comparing the efficiency of different resource allocation alternatives ([Klaes, 2008](#_ENREF_33)). These costs are also defined as *“all costs other than the costs of physical production”* (Lai, 1994, p.84). According to TCE, the information and knowledge available to decision-makers is highly limited and people are rationally-bounded and may behave opportunistically ([North, 1995](#_ENREF_50), [Williamson, 1985](#_ENREF_73), [Adams et al., 2008](#_ENREF_2)). Such bounded rationality, incomplete information, and uncertainty are the main sources of transaction costs. In TCE, the transaction is the ‘basic unit of analysis’ ([Williamson, 1998](#_ENREF_74)). In general, a transaction can be defined as an agreement between two or more parties to exchange goods, services, and payments that can be organised in different ways. According to Williamson (1985, p.1), *“a transaction occurs when a good or service is transferred across a technologically separable interface. One stage of activity terminates and another begins.”* This transfer can also be associated with the provision or exchange of information and ideas. A transaction is an intention to undertake an ‘action of economic or other value’ ([Dixit, 1996](#_ENREF_21)) where, through a contract, buyers and sellers agree to exchange or provide products, properties, services, human resources, and intellectual or other forms of capital.

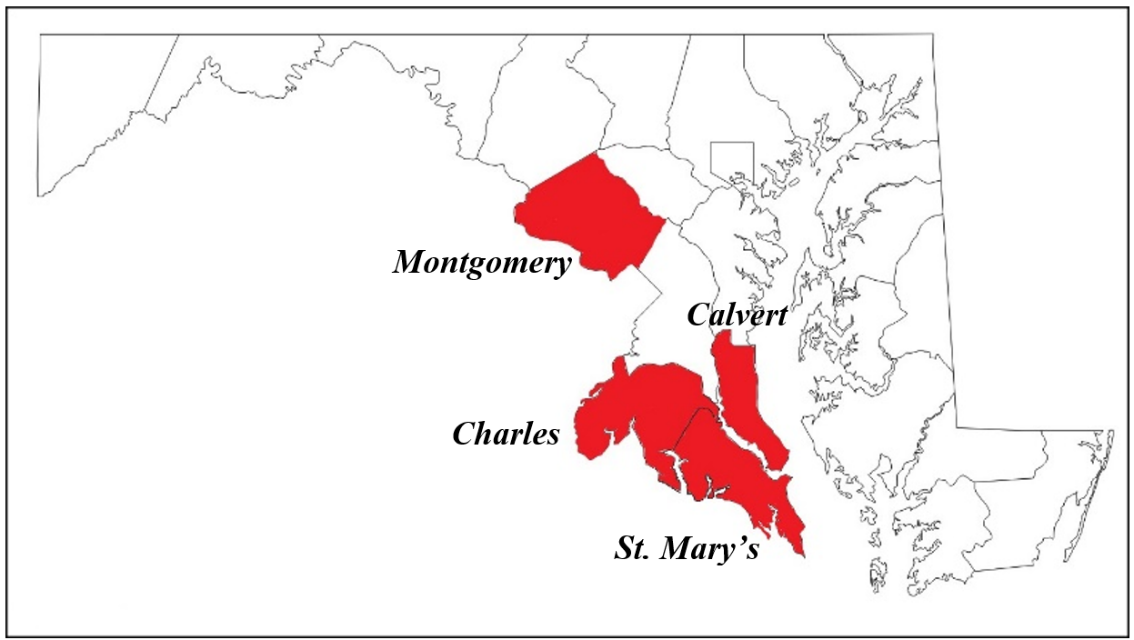
While the impact of transaction costs on the efficiency of a policy has been discussed by several researchers ([Rørstad et al., 2007](#_ENREF_58), [Buitelaar, 2007](#_ENREF_9), [Dawkins, 2000](#_ENREF_18)), there has been limited consideration of the distribution of such costs among people arising from implementation of a policy. Transaction costs incurred by the different parties involved in a policy are expected to vary widely ([Coggan et al., 2010](#_ENREF_17), [McCann et al., 2005](#_ENREF_40)), according to policy approach and its relevant institutional design and arrangement. In other words, transaction costs are usually distributed unevenly among different private and public parties. According to [Coggan et al. (2010)](#_ENREF_17), the actions and interactions between private and public parties can have an upward or downward influence on the significance and distribution of transaction costs experienced by both parties. Reviewing the previous research shows that both private and public transaction costs can be significant ([Mettepenningen et al., 2009](#_ENREF_45), [McCann and Easter, 2000](#_ENREF_41), [Rørstad et al., 2007](#_ENREF_58)). Therefore, in studying the transaction costs of a policy instrument, particular attention has to be paid to the distribution of such costs among the parties involved.

Transaction costs include all of the costs associated with the design and implementation of a policy instrument and can be decomposed into *ex-ante* and *ex-post* transaction costs ([North, 1990](#_ENREF_49), [Williamson, 1985](#_ENREF_73), [Hennart, 1993](#_ENREF_27)). *Ex-ante* costs refer to the costs that arise before the actual transaction, whereas *ex-post* costs are the costs that are occurring after the actual transaction. In regard to public policies, such transaction costs can be experienced before and after a policy decision, as well as before and after policy implementation. These stages of policy decision and implementation are associated with different activities and their related transaction costs. The type, magnitude, and distribution of transaction costs associated with these activities are not equal for each stage of policy design and implementation and vary over the lifecycle of a policy ([Falconer et al., 2001](#_ENREF_22), [Coggan et al., 2010](#_ENREF_17)). Thus, in order to analyse adequately the transaction costs of TDR programmes, all stages of their policy design and implementation should be considered.

1. **Methodology**

In order to analyse the process of designing and implementing TDR programmes through the lens of TCE, a case-study methodology was utilised. The case-study methodology has been used in several TDR studies with different research objectives and approaches ([Machemer and Kaplowitz, 2002](#_ENREF_36), [Renard, 2007](#_ENREF_57), [McConnell and Walls, 2009](#_ENREF_42)). The case studies utilised in this research were selected from the TDR programmes of the US state of Maryland. In terms of area, Maryland is one of the smallest states. Nonetheless, it has one of the highest numbers of executed TDR programmes in the country. Maryland has 24 counties, which more than half of them have operated TDR programmes. By operationalising 13 TDR programmes, Maryland is one of the pioneer states in their implementation ([McConnell et al., 2007](#_ENREF_43), [Dehart and Etgen, 2007](#_ENREF_19)). Four TDR programmes in Maryland, including Calvert, Montgomery, St. Mary’s, and Charles Counties, were selected. The selection of these four TDR case studies provided the authors with an opportunity to study TDR programmes with a number of different characteristics. These counties are located at different distances from Washington D.C., and as a result, they experience different levels of development pressure. Calvert and Montgomery Counties were initiated in 1979 and 1980, respectively, and belong to the first generation of TDR programmes. These programmes have been shown to be successful in preserving the areas that were specified for protection ([Walls and McConnell, 2007](#_ENREF_69), [McConnell et al., 2007](#_ENREF_43)). On the other hand, St. Mary’s and Charles Counties, which were initiated in the 1990s and belong to the second generation of TDR programmes, are viewed as having been less successful, in that they have preserved limited amounts of land ([McConnell et al., 2007](#_ENREF_43), [Dehart and Etgen, 2007](#_ENREF_19)). Despite similarities, the design and implementation of these TDR programmes are different in many respects. They vary in terms of: policy selection approaches, i.e. whether they used a top-down or bottom-up approach; policy design, i.e. whether a downzoning is executed or what approaches in designating sending and receiving areas and allocating extra densities are used; administration processes, i.e. what the eligibility criteria for TDR creation/retirement are or whether the use of purchased TDRs in the receiving areas is by right; and, types of county government, i.e. whether they are a commissioner, charter, or code home-rule county. The locations of these four counties in Maryland are shown in Figure 1.

*Figure 1: TDR case-study areas in the State of Maryland, US*



The authors used semi-structured interviews to collect qualitative data from different parties involved in the TDR transactions in each TDR case-study area. Interviews have been used as part of the methodologies of several studies into transaction costs and TDR (e.g. Coggan et al., 2013, McCann et al., 2005, Chan and Hou, 2015). A semi-structured interview approach was chosen for this research, as this type of interview enabled the authors to tailor the questions to the participants’ positions, experiences and interview context ([May, 2011](#_ENREF_38), [Galletta, 2013](#_ENREF_25)). Moreover, while the interview approach taken had some degree of predetermined order and general structure, this was left flexible in order to give interviewees a degree of freedom to express their own opinions in the order they desired so as to avoid limiting the data emerging from the interviews. Interviews were conducted with 46 participants of the four TDR programmes between March and July 2016. These key stakeholder participants included TDR sellers (landowners and farmers), TDR buyers (developers), and key personnel from the programme administration and planning departments. Since a large number of TDR transactions occurred with the assistance of a land-use attorney, and/or a broker, representatives from these intermediaries were also interviewed (Table 1). After identifying and interviewing the participants who were involved in each TDR case-study programme, the snowball sampling technique was used to identify other potential interviewees. Thus, the interviewed participants were asked to provide information helpful for locating and contacting other members of the target populations ([Sarantakos, 2012](#_ENREF_59), [Thompson, 2012](#_ENREF_66)).

*Table 1: Number of stakeholders interviewed in each TDR case study*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Participants | Landowners | Developers | Local Authorities | Intermediaries |
| Montgomery County | 3 | 3 | 5 | 4 |
| Calvert County | 2 | 2 | 5 | 2 |
| St. Mary’s County | 2 | 2 | 4 | 4 |
| Charles County | 2 | 2 | 2 | 2 |
| Total | 46 | | | |

In order to ascertain when transaction costs arise and by whom such costs are incurred, using open-ended questions, we asked interviewees to guide us through the process as they experienced it. Then, depending on the nature of the participants’ experience, a number of subsequent questions were asked to gain a firm understanding of their experiences and the process through which they had gone. Prompts were used to encourage participants to further elaborate on their responses. Open-ended questions were asked to provide the maximum flexibility for the participants in structuring their comments ([Aberbach and Rockman, 2002](#_ENREF_1)). All of the interviews were conducted on a face-to-face basis. They were carried out in locations, and a time, that suited the interviewees (e.g. office, house etc.), with the exception of two interviews that were conducted by telephone. Interviews lasted for a time ranging from 45 to 90 minutes. The authors transcribed the audio-recorded interviews *verbatim*. In order to analyse the interviews, the transactions in the process of designing and implementing TDR programmes were firstly identified in a chronological sequence, as such transactions are the ‘basic unit of analysis’ in TCE. A form of chronological sequences, which is a type of the analytical technique of time-series analysis ([Yin, 2013](#_ENREF_75)), was utilised. Then, using NVivo 11, the interviews were analysed and coded based on the identified transactions. The authors also reviewed related policy documents and administrative reports, for example, the recorded TDR prices and checklists of TDR application requirements, as a triangulation technique.

1. **Analysing TDR Programmes through the Perspective of Transaction Cost Economics**

The design and implementation of TDR programmes involve several activities. From the TCE perspective, they can be considered as a series of transactions. Therefore, in order to analyse when transaction costs arise and who bears these costs, we break the process of designing and implementing TDR programmes into a set of activities and transactions, and for each activity/transaction, corresponding transaction costs are identified. These activities are categorised into two stages of policy design and policy implementation. Each stage evokes a number of activities and transactions that create transaction costs in what [Cho (2011)](#_ENREF_11) refers to as a ‘friction-laden world’. The policy-design stage is classified into three categories of activities, including: (1) agenda-setting and policy selection; (2) policy design and preparation; and (3) institutional arrangement. The policy implementation involves five categories of activities, including: (1) support and administration; (2) TDR creation; (3) contracting; (4) TDR retirement; and (5) policy evaluation. According to the interviews, the lifecycle of a TDR starts when TDRs are allocated in sending and receiving areas and a local ordinance enables landowners to create or certify TDR credits. Then, it continues as TDRs are sold or transferred from landowners to developers. Finally, the lifecycle ends by TDRs being retired or landed in development projects. The findings of the interviews are synthesised in Table 2, whereby we outline the sequence of activities in the TDR design and implementation process, together with the transactions which create transaction costs, and the main parties involved.

Dividing up an activity or transaction might be somewhat problematic as an activity/transaction can often be broken up into a further set of activities or transactions ([Tan et al., 2012](#_ENREF_64)). For example, although ‘selling TDRs’, as a whole, can be considered as a single transaction, it can be further sub-divided into a set of transactions, such as finding a TDR buyer, negotiating a TDR price, and preparing a contract. Likewise, ‘finding a TDR buyer’, as a transaction that involves ‘selling TDRs’, may itself be further sub-divided into another set of transactions, such as hiring a broker, sharing information and consulting with policy administrators. The transaction of ‘hiring a broker’ is also associated with other transactions, including finding a broker and negotiating a brokerage commission. Such division can be continued. However, in line with [Tan et al. (2012)](#_ENREF_64), this paper decomposes the process of designing and implementing TDR programmes, as far as required, in order to address the research questions at hand.

*Table 2: Activities/transactions in designing and implementing TDR programmes and their related transaction costs*

|  |  |  |  |
| --- | --- | --- | --- |
| *Stages* | *Category of Activities* | *Examples of transactions creating transaction costs* | *Main Parties involved* |
| Policy Design | Agenda Setting and Policy Selection | Identifying issues and problems  Proposing policy choices  Evaluating alternative solutions  Calling for public meetings, hearings and votes  Selecting the preferred policy | Planners, landowners and developers |
| Policy Design and Preparation | Specifying policy goals and objectives  Designating preservation (sending) and development (receiving) areas  Allocating TDR credits and ordinance for sending and receiving areas  Receiving public input  Enactment of enabling legislation  Modifying existing zoning ordinance and downzoning if required | Planners, landowners, developers, and legislature |
| Institutional Arrangement | Hiring and/or training staff  Purchasing required equipment  Designing the administration process and documents  Public TDR educational programmes and workshops | Planners and policy administrators |
| Policy Implementation | Support and Administration | Consulting with TDR sellers and buyers  Reviewing preservation and development applications  Determining eligibility and availability of TDRs in sending sites  Determining applicable number of TDRs in development projects  Maintaining a list of potential TDR sellers and buyers | Policy administrators |
| TDR Creation | Hiring a land-use attorney  Preparing title report  Preparing land survey  Applying for TDR certificate | Landowners and developers |
| Contracting | Finding a TDR seller or buyer  Consulting with policy administrators, land-use attorneys, and brokers  Hiring a broker and paying a brokerage commission  Negotiating a TDR price  Preparing a contract  Payment | Landowners and developers |
| TDR Retirement | Recording the contract in land record  Applying the purchased TDRs in development project  Recording the contract, covenant, and other transfer documents | Developers and Policy administrators |
| Policy Evaluation | Evaluating the effectiveness of policy  Monitoring the TDR market, and balance of TDR supply and demand  Calling for public meetings and receiving public input  Revising the policy design and institutional arrangement | Planners, landowners, and developers |

* 1. **Transaction Costs Involved in TDR Policy Design**
     1. ***Agenda Setting and Policy Selection***

Similar to any other planning policy, the TDR policy design usually starts with agenda-setting. This activity is mainly involved with identifying the issues and problems ([Kingdon, 2003](#_ENREF_32)). In other words, the process of agenda-setting identifies what the problems are and what issues have to be addressed by policy intervention. Then, in order to select the best solution to address the identified problems, different policy instruments and approaches will be proposed and evaluated. The activities of agenda-setting and policy selection in policy design require detailed information concerning the problems and alternative policy choices. These activities might be initiated and conducted with either a top-down approach or a bottom-up approach. Among the TDR case studies, the Calvert County TDR programme has been an example of the latter approach whereby, the TDR programme was suggested by the farming community, while, comparatively, the Montgomery County TDR programme was initiated based on the former approach, with the programme proposed by the planners. In Calvert County, a committee of farmers was established to find alternative farmland-preservation tools for the county in 1976. The main goal of the Committee was to propose a solution to maintain the rural character of the county which was under strong development-pressure and sharp declines in farmland acreage. The committee held several meetings with the farmers, landowners, and other stakeholders. One of the interviewed committee members stated that *“we started collecting information and looked at the options, [such as] zoning, easement, scenic easement, TDR, and all these different techniques… and finally we convened a meeting of everybody who showed up in a high school cafeteria..., and asked everybody:- which technique do you prefer? 75% of the hands said let’s try the TDR.”* This bottom-up approach decreased the transaction costs of agenda-setting and policy selection activities in the Calvert TDR programme, by increasing the credibility of the programme itself, and promoting trust among parties involved.

Unlike Calvert County, the TDR programme in Montgomery County was suggested by the planners and accompanied with a large-scale downzoning. The TDR programme and downzoning were executed as twin tools to preserve farmlands and rural open spaces in Montgomery County, where the TDR programme was designed as a compensation mechanism for landowners negatively-affected by downzoning. As a result of this arrangement, whilst the TDR programme was effectively operationalised, comparatively, significant resistance was encountered. One of the local authorities in Montgomery County highlighted this by stating *“the* *Montgomery TDR programme has faced with* (sic) *a lot of resistance..., even now after more than thirty years.”* By increasing the time and effort that had to be put in lobbying and negotiating with the stakeholders, this resistance increased the transaction costs right from the initial agenda-setting and policy selection activities in the Montgomery TDR programme. Apart from the top-down approach, downzoning is reported to be one of the main causes of such a resistance from a TCE perspective. This is largely because of the issues surrounding the social and political acceptability of downzoning. While downzoning is considered as one of the factors affecting TDR success ([Machemer and Kaplowitz, 2002](#_ENREF_36), [Pruetz and Standridge, 2008](#_ENREF_55)), in its execution, it significantly increases the transaction costs of designing and implementing TDR programmes. In summary, it was found that research and data collection, the analysis associated with defining the problem, lobbying, public participation costs, and the policy selection approach, were the main sources of transaction costs in the agenda-setting and policy selection activities of TDR policy design process. The distribution of transaction costs largely depended on the policy selection approach; under a top-down approach, such costs are incurred mainly by public parties, whereas in a bottom-up approach, they are distributed more equally among the stakeholders, both public (i.e. planners and policy administrators) and private parties, who voluntarily participated in the activities.

* + 1. ***Policy Design and Preparation***

After selecting the preferred policy, it needs to be designed and prepared for implementation. The design and preparation of TDR programmes are associated with activities, including specifying policy objectives, designating sending and receiving areas, allocating TDR credits for these areas, amending zoning ordinance, and enacting enabling legislation. The first activity, specifying policy objectives, requires data collection and also specific knowledge which may create human capital specificity, as a type of transaction cost. Nonetheless, we did not find evidence that such transaction costs are significant. Among these activities, the designation of preservation and development areas, and allocation of TDR credits for them, however, involve lengthy negotiations and lobbying that generate significant transaction costs. For example, one of the interviewees involved in designing the Montgomery TDR programme said that *“we had to hold several meetings to agree on the sending and receiving areas.”* While all interviewees mentioned that they believe there is a need to preserve farmland in their counties, and there is a relatively large degree of consensus regarding the location of these ‘preservation areas’, it seems that the designation of ‘development areas’ has been associated with considerable frictions. In other words, reaching a consensus concerning the location of development areas, where they can receive additional densities, is more complex. This is especially because it can cause a NIMBY[[1]](#footnote-1) reaction, such that, even though the residents support the general idea of transferring development rights from preservation areas to more suitable areas for development, they might oppose the designation of their own neighbourhoods for receiving areas. Moreover, throughout the policy design process, different parties compete for their own interests. As a result of having an advantage in accessing pertinent information, some people in the process might show rent-seeking behaviours. Such opportunistic behaviours can increase the transaction costs of activities involved in the TDR policy design and preparation.

To avoid legal challenges, there is the additional complication that enabling legislation may be required for TDR programmes ([Machemer and Kaplowitz, 2002](#_ENREF_36)) and this may be associated with different processes, depending on the type of local government. The counties in the state of Maryland have three types of county government, including commissioner, charter, and code home-rule counties. Calvert and St. Mary's Counties are run by Commissioners. In comparison, Montgomery and Charles Counties operate under the charter form of government and code home rule, respectively ([Maryland Association of Counties, 2016](#_ENREF_37)). Calvert and St. Mary's Counties were required to go through the state legislation process in order to enact enabling legislation for the TDR programmes. However, the process of enactment of enabling legislation for establishing the TDR programmes involved less complexity in Montgomery and Charles Counties, where the types of government allow for more local autonomy than where Commissioners are in place. Thus, the form of local government can have a considerable influence on the magnitude of transaction costs of TDR policy design.

* + 1. ***Institutional Arrangement***

Before implementing a planning policy, the institutional arrangements for policy need to be designed and/or adapted. ‘Institutional arrangement’ is a central concept in the NIE, which can be defined as *“the way exchange of goods and services is coordinated”* (Coggan et al., 2013, p.224). In a planning policy context, such arrangements can provide a structure whereby agents involved in the policy can cooperate. The institutional arrangements of the TDR programmes are partially designed through specifying the sending and receiving areas and allocating TDR credits for them. But such arrangements are also associated with hiring and/or training staff, purchasing required equipment, and designing the administration process and documents. In other words, prior to the implementation, the TDR programmes need the designated staff or policy administrators to manage the programme, as well as the design of administration process and its related documents. The interviews with policy administrators highlighted that the expertise required to perform the TDR programmes are, more or less, similar to the skills needed to administer other planning and preservation programmes. As a result, the counties normally assigned the duties concerning TDR administration to their existing employees and in-house staff. For example, one of the policy administrators in Charles County pointed out that *“I was already under contract to do other duties for the county... [Regarding the TDR administration] I didn't have any special training. I just kind of grew up through the process, so it was on-the-job training.”* Therefore, it seems that the counties did not incur significant transaction costs regarding the training of staff for administrating the TDR programmes.

The counties usually assign two people to run the TDR programmes, such that one person is responsible for the sending areas (or the supply-side of TDR market) and another person is responsible for the receiving areas (the demand-side of market). Consulting with TDR sellers, reviewing TDR applications, and certifying TDRs are the duties of the former administrator, whereas consulting with developers and allocating extra densities in receiving areas, based on purchased TDRs, are responsibilities of the latter staff member. These two people could be working within the same county department, which is the case in Calvert, St. Mary’s, and Charles Counties, or they could be based in different departments, which is the case in Montgomery County. In Montgomery County, the Agricultural Services Division of Department of Economic Development is mainly responsible for the sending side, while the Planning Department is responsible for the receiving side of the programme. Separation of the tasks between different departments makes administration process and information collection more time-consuming, compared to other counties, and consequently, increases transaction costs.

In terms of the administration documents, four types of documents are developed that can be used in any TDR transaction, including the TDR certificate, easement or covenant, deed of transfer, and TDR sale contract. TDR certificates vary from comprising only serial numbers, in the case of Montgomery County, to being an official document issued by the county, in the cases of Charles and St. Mary’s Counties. Both TDR easements/covenants and deed of transfer need to be approved by the county, whereas a TDR sale contract is a private sale document only between sellers and buyers. All of the TDR programmes use standard template documents for the TDR easements/covenants and deed of transfer, which can be found on the counties’ websites. The use of these ‘boilerplate’ documents shows the low degree of asset specificity. This attribute of TDR administration decreases transaction costs through making the institutional knowledge gained from one TDR transaction easily transferable to other transactions. Finally, planners and policy administrators can hold some public TDR educational programmes and workshops. While such activities generate considerable transaction costs mainly for planners and policy administrators in the policy design stage, they reduce the transaction costs of policy implementation for all parties involved in the TDR programmes by promoting public awareness, building trust among parties involved, and decreasing information collection costs.

* 1. **Transaction Costs Involved in TDR Policy Implementation**
     1. ***Support and Administration***

During the implementation of TDR programmes, the local authorities provide potential TDR buyers and sellers with relevant information and other administrative support. In this stage, the policy administrators are associated with different transactions and activities that generate transaction costs, including consulting with TDR sellers and buyers, reviewing preservation and development applications, determining eligibility and availability of TDRs in sending areas, determining applicable number of TDRs in development projects, and maintaining a list of potential TDR sellers and buyers. The process of participation in the TDR programmes for landowners and developers normally begins with initial consultations with the policy administrators. As one of the policy administrators in St. Mary’s County pointed out, *“the first activity, usually, is an initial consultation that can be a phone call or an office meeting.”* In such consultations, the administrators may clarify the TDR administration process, provide a list of people willing to sell or buy TDRs, suggest some land use attorneys and brokers, and answer any other queries landowners and developers might have. The policy administrators normally provide a checklist of activities required for the TDR administration. All interviewed policy administrators believed that, because of the market-based nature of TDR programmes, the administration of them has been more straightforward, and less time-consuming and complicated, in comparison to the other planning and preservation policy instruments, such as PDR[[2]](#footnote-2) and easement programmes. For example, while a PDR programme requires the local authorities to conduct the ‘time-consuming process of valuation’ for the county to directly buy development rights from the landowners, by comparison, in TDR programmes, the TDR prices are set by the private market and without direct government interventions. Also, since PDR easements are more restrictive than TDR ones, they require more frequent and time-consuming monitoring and inspection. Thus, the policy approach of TDR programmes (i.e. market-based approach) decreases the transaction costs of policy implementation for the policy administrators.

The time and effort that has to be put into reviewing preservation and development applications depends on the policy design and administration process. Regarding the preservation applications, the policy administrators need to determine the eligibility and availability of TDRs in sending areas. Calvert, Montgomery, and St. Mary's Counties have simplified the administration process by specifying the number of acres required to create a single TDR. In other words, the landowners in these counties can create a single TDR per one, five, and three acres, respectively, from the properties located in the sending areas. In comparison, the policy administrators in Charles County calculate the number of eligible TDRs of lands in sending areas based on certain soil, size, and location criteria. By increasing uncertainties, administration costs, and information collection costs, this regulation increases transaction costs of both policy administrators and landowners in Charles County, compared to other case studies. Determining applicable number of TDRs in development projects, as another task of policy administrators in implementing TDR programmes, will be discussed in the TDR retirement section.

* + 1. ***TDR Creation***

The creation of TDRs is the first step for those landowners who are interested in participating in the TDR programme, and selling the TDRs of their properties. TDR creation refers to the process of certifying TDRs extracted from a sending site and preparing them for transfer and change of ownership. During the process required to create TDRs, landowners, and sometimes developers, are involved with some transactions, such as hiring a land-use attorney, preparing a title report, preparing a land survey, and applying for TDR certificates. As part of a TDR application, the counties require a title report, and sometimes a land survey. A title report is a document that shows the history of a property in terms of its ownerships, easements, mortgages, and other rights and regulations concerning the property. On the other hand, a land survey refers to the measurement and mapping of a property in terms of its acreage, location, and boundaries. Preparation of these documents requires hiring a land-use attorney and a land surveyor. While the land-use attorney is hired directly by the landowner, the land surveyor is hired either by the landowner or on their behalf by the land-use attorney, as part of their contract. The costs of preparing title reports and land surveys vary depending on the situation of the land. However, they are normally within the range of $500-$1500 for the title report and $10,000-$15,000 for the land survey[[3]](#footnote-3). These costs are considered as the main transaction costs in the process of TDR creation.

Some interviewed landowners and developers questioned the necessity of the land survey as a requirement for TDR creation, given that it creates considerable transaction costs. For example, one of the landowners in Montgomery County argued that *“I think [preparing] a survey is not necessary. You know the acreage of the entire county and if this parcel is 5 acres bigger than it supposed to be, somebody’s parcel is around 5 acres smaller. So overall it'll all average itself out eventually.”* Although such costs are normally incurred by the landowners, when there are high demands for TDRs, the TDR sellers have higher bargaining power in negotiations with buyers over TDR prices and their associated costs. In other words, depending on market conditions, and the agreement between buyers and sellers, these costs can also be incurred by either or both parties. One of the developers in St. Mary’s County pointed out that *“even though the landowner incurs those costs, as a developer, obviously I'm going to pay more for the TDRs, because the landowner had to pay those expenses... costs get passed along to the end user.”* In summary, the transaction costs of TDR-creation transactions can be significant and are mainly incurred by the landowners and developers involved in the TDR transactions.

* + 1. ***Contracting***

After creating TDRs, landowners are required to find a buyer for their TDRs and complete the transfer. The important transactions at this stage are finding a TDR seller or buyer, collecting information from policy administrators and intermediaries, hiring a broker and paying a brokerage commission, negotiating a TDR price, preparing a contract, and payment. One of the main sources of transaction costs for the sellers of TDRs is uncertainty surrounding how to find a buyer for their TDRs. Using different means, all of the counties provide some information, available for TDR buyers, about potential TDR sellers. In the case of Charles County, there is an online list of people who have TDRs certified. Other counties, on the other hand, maintain a list of individuals who have TDRs for sale, which is available upon request. However, no such listing of potential buyers is made available. Thus, it is much easier to find a TDR seller than a buyer. There is no source to find the TDR buyers, other than ‘word of mouth’ and/or the use of intermediaries such as brokers and land-use attorneys. One of the farmers in Montgomery County, pointed out that *“I think there could be a better platform, like an online website, where it's not only word of mouth. Not just you know a guy, he knows a guy. Some kind of database platform set up where developers can go in there and you can look at it. They can say I'm looking for this amount of TDRs, who in the county has them.”* This uncertainty over finding a buyer for TDRs increases overall transaction costs of TDR sellers, in comparison to the costs incurred by the TDR buyers.

Negotiations over TDR prices are also associated with high levels of uncertainty, thereby increasing transaction costs for the parties involved in the transaction. Information asymmetries, opportunism, and substantial TDR-price fluctuations are the main sources of uncertainties in the TDR transactions. Because of their past experiences and personal connections, developers usually have better access to relevant data and information concerning the prices at which TDRs are being bought and sold, compared to the farmers and landowners. Such information asymmetries provide potential for rent-seeking and opportunistic behaviours. Furthermore, as the TDR prices are mainly driven by the housing and development market, their fluctuations have been significant in the TDR case studies during the years of their initiation, with the exception of Calvert County. For example, the TDR price in Charles County was $10,000 per TDR in 2005, while, one year later in 2006, the price was as high as $20,000 per TDR. Again, mainly because of economic and financial crisis of 2008, the price of $19,500 per TDR in that year dramatically dropped and traded for $5,000 per TDR in 2009. Finally, due to the low level of asset specificity in TDR contracts, the parties involved in TDR transactions normally use some ‘boilerplate’ templates to prepare such contracts. Thus, preparing a contract between sellers and buyers of TDRs is more or less a straightforward activity which is not associated with considerable transaction costs.

* + 1. ***TDR Retirement***

The last step in the lifecycle of TDRs is their retirement, which refers to the process of landing (i.e. permanently assigning) them in areas designated for development. When TDRs are created and transferred to developers, they can potentially use them as allowances for extra densities in their development projects located in receiving areas, subject to gaining the approval of planners and policy administrators. There are some transactions involved in this step that create transaction costs, including recording the TDR sale contract in the land record, applying the purchased TDRs in development projects, and recording the contract, easement or covenant, and other transfer documents. As a market-based policy instrument, TDR programmes, in theory, provide developers with an alternative mechanism to obtain extra densities for their development projects in a way that should be associated with less time-consuming and complicated processes, compared to other regulatory alternatives. In other words, developers should incur fewer transaction costs, since they do not have to go through the uncertain and lengthy development review processes and public hearings.

With the exception of Montgomery County, the use of TDRs in development projects is not associated with high transaction costs for developers in the TDR case-study programmes. In Calvert, Charles, and St. Mary’s Counties, the use of purchased TDRs in the receiving areas is ‘by right’, which means the developers do not have to negotiate over the use of density with TDRs and can build at the level specified in the zoning ordinance. However, in Montgomery County, the density can be subject to negotiation with the county planning administration and/or public hearings on development, even with TDRs being specified in the zoning ordinance. Thus, developers in this county are faced with uncertainty over the development density outcomes, notwithstanding their TDR purchase. This attribute of Montgomery County increases transaction costs of the developers through an uncertain and lengthy development review process. One of the developers in Montgomery County mentioned that *“even after purchasing TDRs, you don’t know what is going to happen in the development review process.”* This difference between Montgomery County and other case studies lies behind their different locations, scales, and, consequently, approaches toward future development. An important contrasting characteristic of the other three counties is that they are mainly rural, and tend to have a positive outlook towards development. Whereas Montgomery County, having more urbanised areas with a population approximately three times more than all the other three counties collectively, has stricter policies regarding development.

* + 1. ***Policy Evaluation***

Evaluation is an essential part of the policy design and implementation process. All counties have conducted a number of ongoing evaluations after the initiation of programmes. Ongoing evaluation is a type of evaluation that is undertaken simultaneously during the implementation of a policy and can result in shifts and modifications in policy design and implementation ([Alexander, 2012](#_ENREF_6), [Oliveira and Pinho, 2010](#_ENREF_52)). Such evaluations in TDR programmes mainly aim to assess the effectiveness of the programme, and to monitor the TDR market, in general, and the balance of TDR supply and demand, in particular. These ongoing evaluations have led to some major changes in the design and implementation of all TDR case-study programmes. For example, in order to increase the effectiveness of the TDR programme, St. Mary’s County programme evaluations resulted in three major changes in 1999, 2002, and 2006. Based on the evaluations, the county amended the zoning ordinance in order to increase the demand for TDRs and simplified the administration process by removing some TDR application requirements, such as the land survey. Transaction costs of TDR evaluation activities are comparable with those concerning the TDR policy design (i.e. agenda-setting, policy design, and institutional arrangement), discussed above. Such activities require significant information collection and negotiations, which are the main sources of transaction costs in TDR evaluation. In the case of St. Mary’s County TDR programme, a taskforce that formed to evaluate the programme held several meetings over the course of two years. Similar to the TDR policy design activities, the distribution of such costs depends on the policy evaluation and policy change approach, in terms of whether it uses a bottom-up or a top-down approach. Table 3 outlines the key findings concerning each category of activities in the process of designing and implementing TDR case-study programmes and their related transaction costs.

*Table 3: Key findings concerning each TDR programme and types of influence on transaction costs*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Stages* | *Category of Activities* | *Key findings by county and types of influence on transaction costs* | | | |
| Calvert | Montgomery | St. Mary’s | Charles |
| Policy Design | Agenda Setting and Policy Selection | Bottom-up approach (-) | Top-down approach (+) | Top-down approach (+) | Top-down approach (+) |
| Policy Design and Preparation | No downzoning at the outset of programme (-) | Downzoning (+) | Downzoning (+) | No downzoning (-) |
| Institutional Arrangement | Single county department involved (-) | Multiple county departments involved (+) | Single county department involved (-) | Single county department involved (-) |
| Policy Implementation | Support and Administration and TDR Creation | TDRs availability only based on land size (-) | TDRs availability only based on land size (-) | TDRs availability only based on land size (-) | TDRs availability based on soil, size, and location criteria (+) |
| Contracting | Relatively stable TDR-prices (-) | Substantial TDR-price fluctuations (+) | Substantial TDR-price fluctuations (+) | Substantial TDR-price fluctuations (+) |
| TDR Retirement | Use of purchased TDRs by-right (-) | Use of purchased TDRs not by-right (+) | Use of purchased TDRs by-right (-) | Use of purchased TDRs by-right (-) |

(+) upward influence on transaction costs, (-) downward influence on transaction costs, comparatively

1. **Summary and Conclusions**

In analysing policy instruments, policy analysts often use two fundamental concepts of efficiency and equity as evaluation criteria. Presented by new institutional economists, transaction costs are one of the influencing factors on both the efficiency and equity of policy instruments. Positive transaction costs, on the one hand, reduce the efficiency of a policy. On the other hand, as such costs are usually distributed unequally among different private and public parties involved in a policy, they can have a considerable impact on the equity of any policy. In analysing whether a policy instrument is effective and efficient, as well as to understand distributional impacts, the transaction costs incurred in operationalising such instruments are, therefore, particularly important. Despite their introduction into the planning literature, transaction costs have yet to be fully examined in terms of the process of designing and implementing planning policy instruments. The activities associated with such processes involve positive transaction costs, which vary across time and among parties involved in different stages of policy design and implementation. Through analysing four TDR case-study programmes, this article contributes to the planning literature by showing how planners can undertake an institutional analysis of the process of designing and implementing a planning policy instrument from the lens of TCE. Such an institutional approach can be utilised for analysing different planning policy instruments with the objective of increasing their efficiency and also to understand their distributional impacts. Importantly, this study provides a framework to assist future research on how to incorporate transaction costs into planning policy design and implementation.

The design and implementation of the TDR programmes consist of different activities and transactions that generate transaction costs (as we outline in Table 2). The process of designing TDR programmes involves three categories of activities, including agenda-setting and policy selection, policy design and preparation, and institutional arrangement. Among the identified transactions of TDR policy design activities, two transactions are particularly associated with notable transaction costs; first, calling for public meetings, hearings and votes in the agenda-setting and policy selection; second, modifying existing zoning ordinance along with downzoning. In other words, the transaction costs of TDR policy design can be significantly affected by the policy selection and design approach regarding public participation and the decision concerning downzoning of the sending and receiving areas. Although public involvement and participation increases the transaction costs of the activities concerning TDR policy design, it can decrease such costs in the process of TDR implementation through increasing the credibility of a programme, raising public awareness, and building trust among parties involved in the programme. On the other hand, downzoning is politically unpopular, whereby it generates resistance against the design and implementation of the TDR programmes. Transaction costs of designing TDR programmes are mainly incurred by public parties (i.e. planners and policy administrators). However, a bottom-up approach in policy design can reduce such costs.

The TDR-implementation stage is classified into five categories of activities, including support and administration, TDR creation, contracting, TDR retirement, and policy evaluation. While the transaction costs of activities associated with support and administration and policy evaluation are mainly incurred by public parties, the transaction costs of TDR creation, contracting, and TDR retirement, are largely incurred by private parties (i.e. landowners and developers). The main sources of transaction costs in the TDR-creation activities are fulfilling the TDR administration requirements, such as preparing the title report and land survey. Uncertainties surrounding TDR prices, and finding TDR buyers, create substantial transaction costs in the activities associated with contracting. Transparency in the TDR markets can decrease the information-related uncertainties and the potential for rent-seeking and opportunistic behaviours, thereby reducing the transaction costs for parties involved in the transactions. Finally, subsequent to purchasing TDRs, the main source of transaction costs in the TDR retirement stage results from the need for further negotiation with the county, and associated public hearings, for obtaining extra density to be used in the development projects. The use of purchased TDRs ‘by right’ decreases the transaction costs of developers.

In terms of the distribution of transaction costs, the results of this study show that such costs vary across time, as well as among parties involved in different stages of policy design and implementation. While planners and policy administrators associate with high transaction costs in the TDR policy-design stage, their costs are not reported to be substantial in the TDR policy-implementation stage. In other words, due to the market-based nature of TDR programmes, transaction costs arising from their implementation are largely incurred by private parties, rather than public parties. In order to find a buyer/seller for TDRs and to understand what the current TDR sale price is, the TDR sellers/buyers are heavily reliant on their personal relationships. This relational form of transaction can have an upward effect on transaction costs by increasing uncertainties and information-collection costs. However, such transaction costs incurred by developers are reported to be fewer in comparison to those of landowners, due to the fact that they usually have better access to relevant information through their personal connections and past experiences. By providing required information to the parties involved and revising the institutional arrangements of TDR programmes, the counties can decrease uncertainties over TDR transactions.

The conformance-based evaluation, thus far, has been the dominant approach to TDR programme evaluations. Taking such an approach to planning policy analysis, whereby a policy is viewed as successful if the objectives set by the planner are achieved, neglects to consider the considerable transaction costs that can arise in the design and implementation of a policy. Accounting for transaction costs, and other institutional aspects, is essential for the success or failure of any policy instrument. Thus, along with highlighting the importance of transaction costs for the efficiency and equity of TDR programmes, this paper presents a way that such transaction costs can be analysed systematically through a framework informed by TCE. Taking such an approach has the potential to aid policy design and implementation, as well as to provide more complete evaluations of planning policy outcomes. Importantly, this paper argues that gaining a better understanding of when transaction costs arise, and who bears these costs, enables planners to design and implement policy instruments in a more efficient and equitable manner. Nevertheless, along with timing and distributional aspects of transaction costs in the design and implementation of policy instruments, measuring the magnitude or size of such costs can be of significant importance. While it was beyond the objectives of the current paper, we suggest that such measurement would be a fruitful and helpful area for further research.

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1. . Not In My Back Yard [↑](#footnote-ref-1)
2. . Purchase of Development Rights [↑](#footnote-ref-2)
3. . As of June 2016 [↑](#footnote-ref-3)