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RESEARCH ARTICLE

# Aviation policy instrument choice in Europe: high flying and crash landing? Understanding policy evolutions in the Netherlands and Germany

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**Abstract**

In the public debate on climate change in Europe, aviation transport has become a bone of contention and thus also a target of political regulation. While the actual available policy instruments, their designs and effects have been extensively studied, their political economy has remained a rather blind spot of research. Therefore, in this article we explore factors accounting for the instrument choice in aviation policy. Revealing most different evolutions in this matter, the Netherlands and Germany represent appropriately illustrative cases for a comparative exploration. Based on the Political Process-inherent Dynamics Approach, we shed light on a highly complex and limiting institutional environment for aviation policy-making and ultimately identify diverging conceptions of problem structures as well as different configurations of party competition as main explanatory factors for instrument choice and aviation policy evolution.

**Key words:** aviation transport; climate change; comparative policy analysis; environmental policy; instrument choice

In the Paris agreement, countries have committed themselves to decrease their carbon emissions drastically. Against this background, in transport policy aviation has become an emblematic bone of contention since it is proven to be the most polluting mode of transport (Rothengatter 2020). In sum, around 2.5 % of global carbon emissions are caused by global aviation transport, although different studies indicate a potentially higher greenhouse gas effect of up to 5 % or even beyond due to more influential non-$CO_2$-emissions, e.g., nitrogen oxides (Lee et al. 2009, 2021). At the same time, global aviation traffic is deemed essential for global interactions and trade, and it has continuously grown in the years until 2020. While the number of flights has decreased significantly in the COVID-19 pandemic, the sector is expected to return to its growth trajectory after the pandemic (Gössling and

Humpe 2020). As this growth regularly entails a substantial increase of emissions, the regulation of aviation transport epitomises general characteristics of environmental policies representing the classic conflict between ecological and economic interests. For aviation transport, in principle, policymakers have a number of instruments at their disposal which aim at technological innovations of airplanes, the development and use of alternative low-carbon fuels or the reduction of the absolute number of flights (Larsson et al. 2019; Fichert et al. 2020). In our study, we focus only on instruments targeting the latter goal, for which – if governments have taken action at all – the introduction of aviation taxes[1] is the policy that as our analysis shows is the only nationally available and, accordingly, the one that has been chosen most. While it is rather evident, why national governments, generally, have been reluctant to regulate the aviation sector regarding specific institutional settings like the *Chicago Convention* (Conrady et al. 2019; see below), the factors accounting for variations in national political handling of aviation transport have hardly been addressed by political scientists so far (Forsyth 2020). Thus, it is striking that some countries have successfully implemented regulations of aviation transport in form of an aviation tax while other countries have not. As "successful," we understand legislative implementation that has remained in place throughout our period of investigation (policy output) irrespective of its actual problem-solving or sideeffects (policy outcome). Within the harmonised *European Economic Area,* this situation represents an interesting puzzle, in particular as this variance of output is present even among environmental pioneer states (Liefferink et al. 2009; Duit 2016). This, ultimately, yields our research question *why did some European countries successfully adopt an aviation tax?*

For exploring our research question, we concentrate on the Netherlands and Germany which showed a substantially different handling of the aviation tax in a comparable period of time (from 2008 until 2021). Specifically, we focus on the processes of policy-making in these two countries since these provide us with consistent explanations for causal backgrounds of national instrument choice (Hall 2003; Blatter and Haverland 2014).

In our work, we follow research on instrument choice in environmental policy and apply the heuristics of the *Political Process-inherent Dynamics Approach* (PIDA) (Böcher and Töller 2015). As this approach integrates explanatory factors of policy analysis and has been used to study instrument choice and change (Böcher and Töller 2007; Böcher 2012), it suits our main research interest to explore possible explanations and their related causal configurations for the variance in the taxation of aviation transport among European countries. Methodologically, our research design applies a *causes-of-effect*-perspective and represents a case-oriented research approach (Goertz and Mahoney 2012, ch. 3, Rohlfing 2012, ch. 2).

As central findings, in our comparative case study, we identify temporally and nationally diverging conceptions of problem structures as well as different configurations of party competition as main explanatory factors for instrument choice and aviation policy evolution.

Our contribution proceeds as follows: in the next sections, we outline foundations of instrument choice research and present the PIDA. After that, we explain

[1]Aviation taxes, also called ticket taxes, "levy a tax on each origin-destination passenger departing from an airport in the country where the tax is applied" (Faber and Huigen 2018, 8).

our general research approach including the selection of the illustrative case studies; before, we explore specific factors shaping instrument choice in aviation policy in a comparative case analysis. In the final section, we summarise the main conclusions and put these into perspective of current debates on environmental and economic rationales of policy-making.

## Instrument choice in environmental policy

The choice of policy instruments has long been an important research question in policy research and especially in environmental policy (Salamon 2002; Böcher 2012; Howlett 2019; Capano and Howlett 2020; Capano et al. 2020). Research on instrument choice, which developed as early as the 1980s, initially assumes that the state can use different instruments to achieve policy goals, including regulation, taxation or persuasion (Böcher 2012). Even in this early literature, it was argued that instruments are not chosen based on whether they best solve the policy problem, but that instrument choice often depends on political processes including institutional background, power relations and conflicts between different interests (Woodside 1986). Especially in environmental policy, instrument choice has been for long a major research topic: starting point was here the observation that the state mainly relied on command-and-control instead of more efficient market-based instruments suggested by environmental economists (Larrue 1995). Thus, in research on instrument choice, importantly, "choice" does not mean that the state always selects the "best" alternative between different available instruments, but rather that an instrument is often used for political reasons without really considering other instruments, or that alternative instruments are often only theoretically available. Instrument choice is an umbrella term for research that deals with questions of why an instrument was designed exactly the way it was, why it was chosen and not another or even what differences exist between similar instruments introduced in different countries or policy fields (Hahn 1989; Jordan et al. 2003; Bähr 2010; Mann and Roberts 2018). At that early stage of instrument research, it became clear that instrument choice deals with considering "how policy makers select instruments in practice" (Bressers and Klok 1988, p. 22) and that "perceptions of the proper "tool to do the job" intervenes between context and choice" (Linder and Peters 1989, p. 35). The idea behind eco-taxes as a market-based environmental policy instrument is that ecologically undesirable actions (e.g. emissions) are priced by the introduction of a tax. An eco-tax, therefore, should help as a price signal to confront polluters with the ecological consequences of their economic action (Böcher 2010). However, research on the introduction of such market-based instruments showed early on that such instruments were rarely introduced in their "textbook" version (Hahn 1989). Regarding eco-taxes, key findings were as follows: (1) the tax rate, often, is too low to stimulate behavioural change, as the taxes were not imposed to provide incentives for more environmentally friendly behaviour, but to generate revenue for the state budget (Bressers and Huitema 1999; Hahn 2013). (2) When economic incentives are implemented, they encounter institutional paths of environmental policy that endure. Market-based instruments then exist parallelly to other regulations and complement but do not replace them. In practice, economic

instruments compete with long-standing regulations and are often only added to the range of existing instruments (Hahn 1989; Bressers and Huitema 1999). More recent instrument research refers to this as "layering" or the incremental emergence of policy mixes (Jordan et al. 2013; Wurzel et al. 2013). (3) Another important finding is that the rate of an introduced tax is often very low at the beginning and only slowly moves to the direction of economic incentives mainly to tame political resistance (Hahn 2013). Based on these findings, an open question is how to analyse and explain these observed deviations from textbook rationality regarding the introduction of new market-based instruments. In our article, we want to examine to what extent we can identify similar empirical phenomena in the case of aviation taxes and scrutinise concrete policy choices on the basis of PIDA.

## Analytical framework political process-inherent dynamics approach (PIDA)

The PIDA has been developed to analyse environmental policy processes and explain their outputs, like policies or emerging instruments (Böcher 2012; Böcher and Töller 2012, 2015). PIDA was inspired by an early version of the Institutional Analysis and Development (IAD) framework by Kiser and Ostrom (Kiser and Ostrom 1982). Like the IAD, PIDA serves as an analytical framework integrating different factors as independent variables influencing policy processes and the emergence of policies. PIDA highlights, like IAD, the role of actors and institutions. However, PIDA does not examine the emergence of institutional rules as answers to collective action problems and derive recommendations from them, such as conditions that lead to successful governance of the commons (Ostrom 1990). The biggest difference, and the reason why we use PIDA, is that IAD has mostly been applied to decentralised common good problems (Clement 2010). Unlike IAD, PIDA explicitly takes into account different factors of the overarching policy processes that shape institutions and policy instruments "politically" and particularly emphasises the conflicts between, e.g., political interest groups and political parties that are central to explaining policies but do not play a particularly important role in IAD (Clement 2010; Tosun and Workman 2017). PIDA emphasises the interests of parties and political actors, the role of institutions as enabling or hindering factors, and above all highlights chance, dynamics and power-determined aspects that may even lead to "suboptimal" policies not solving problems. Since PIDA also integrates the actual availability of alternative measures as an explanatory factor and has already been successfully applied in instrument choice studies, this approach is particularly well suited for our study (see for a recent application of PIDA: Pelaez Jara 2020). Another alternative to PIDA could be policy design approaches (Eliadis et al. 2005; Peters 2018; Howlett 2019). Such approaches, however, in our view, assume too strongly as if policymakers, when confronted with a policy problem, could draw on a "toolbox" of instruments from which to choose the most appropriate one based on (nearly) complete information. Since we, first, do not take it for granted that politicians are necessarily interested in problem-solving and second, assume that lobbying interests and other politico-economic factors strongly influence the selection of aviation taxes and that the instrument does not correspond to ideal design, we do not apply policy design approaches here. For PIDA, policy-making is "characterized

rather by developments that are the outcome of chance and inherent dynamics than (mainly) by formal-rational, public-good-orientated problem solving" (Böcher and Töller 2015, p. 16). Power and the interests of powerful groups often prevent "rational" policy design, which is particularly evident in environmental policy in view of the countless discussions about climate policy that is too weakly designed (Cullenward and Victor 2020). In a recent contribution, Howlett writes precisely that policy design research assumes a government that serves public interests and often overlooks the "dark side" of politics (Howlett 2021). Howlett therefore proposes a new research agenda that also looks much more closely at such power-driven aspects of policy (Howlett 2021). In this context, PIDA could inform policy design research in the future.

The main argument of PIDA is that policies are neither the result of rational problem-solving processes nor the result of pure interest aggregation (Böcher and Töller 2012, 2015). The central factor determining political processes are *actors* and their interests. Individual or collective actors' activities take place under certain institutional framework conditions, which can be formal or informal and action-constraining or action-enabling. These *institutions,* understood as formal or informal rules, affect the possible implementation of policy alternatives by either extending or limiting the options available for policymakers' choices (Scharpf 2000). Important are institutional path dependencies, meaning that political decisions determine a long-term path that political actors cannot leave or easily change (Peters 2019). Another influencing factor is the *problem structure* that affects different aspects of the policy process. Is there a clear political problem with a clear solution or are there contested problems leading to political conflicts about how to solve them? Are there distributional conflicts between different societal groups resulting from different policy alternatives? Another factor is that of available *instrumental alternatives*. Can all theoretically conceivable instrument alternatives really be selected in a political decision-making situation, or do institutional path dependencies, political interests and power relations, or dominant social discourses, unfold a restricting effect? Actual possible instrument choice often diverges from theoretical options in policy. Furthermore, unexpected *situational aspects* representing external factors like scandals and catastrophes can change the course of a political debate and open new windows of opportunity (Böcher 2012; Böcher and Töller 2015). PIDA aims to explain policies in which the institutional framework plays a major role and conflicts and changes in actor behaviour occur in the political process because of their inherent dynamics and problem structures. So far, the approach has been used to analyse different cases in environmental policy (Vogelpohl et al. 2021a, 2021b) and more recently in housing policy (Slavici 2021) or governance of European genome editing (Ladu 2020).

PIDA helps to analyse and explain instrument choice in environmental policy (Böcher and Töller 2007; Böcher 2012). It is here argued that the choice of environmental policy instruments does not follow straightforward problem-solving, after which politicians select the instrument that seems best suited for the solution. Furthermore, policy instruments are neither the result of the power and interests of political actors alone, nor the result of comprehensive political learning processes. Rather, in the policy-making process, we identify elements of political rationality that act as restricting or enabling filters and thereby reduce the theoretically

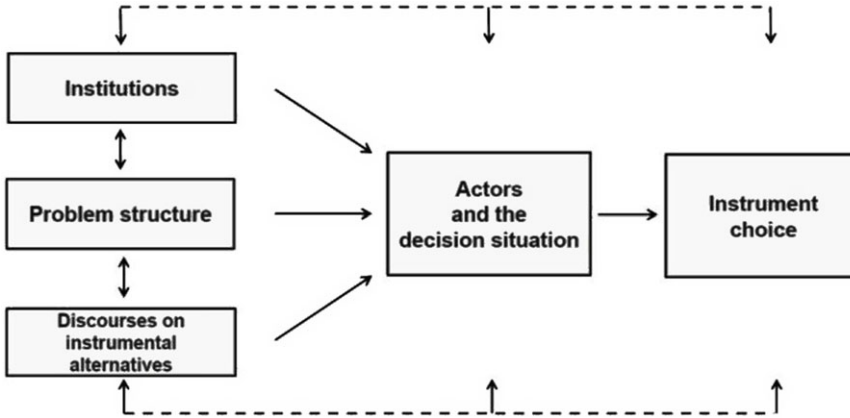


**Figure 1.** PIDA as analytical framework for studying instrument choice (Böcher and Töller 2007, adapted from Böcher 2012).

available range of policy instruments before governments adopt a specific instrument and not another or a special variation of an instrument (Figure 1).

According to PIDA, policy instrument choice is the result of the interaction of different factors which leads to two contradictory consequences: on the one hand, the range of available policy instruments increases (Böcher and Töller 2007, 2012). This is the case, e.g., when, due to societal discourses and the influence of scientific policy advice, alternative instruments are more strongly taken up and discussed in the political process. On the other hand, some factors like institutions, the problem structure or power and interests of political actors limit the degree of instrumental change. This is the case when distributional effects of a possible introduction of new instruments become known and groups that are negatively affected by the consequences of a new instrument, e.g., higher costs due to a new tax, engage in lobbying or when institutions such as constitutional law oppose the introduction of new instruments. Due to different political systems, these factors may differ between countries and may lead to variations in the policy output (Böcher and Töller 2007, 2012).

## Methodology

For our study, all countries are relevant in which the introduction of a ticket tax for international aviation passenger transport has been on the agenda at some point of time irrespective of the ultimate status of the tax[2] (for an overview, see Faber and Huigen 2018). Exploring policy-making processes in an underresearched area of policy analysis, however, we rely on a case-sensitive research design and therefore could not include all cases in our study. Instead, we opted for a paired comparison which grants us a maximum of case intimacy and helps us to avoid looking only at

[2]In Europe, as of 2021 an aviation tax is in place in eight countries: Austria, France, Germany, Italy, Netherlands, Norway, Sweden and the UK (EU 2019).

national idiosyncrasies (Tarrow 2010). The Netherlands, here, is particularly interesting since it had introduced an aviation tax, which was abolished only one year later, and most recently reintroduced such a tax. Considering this variety, we deem it most suitable for our purposes to explore and illustrate explanations for specific aviation policy instrument choice. By including Germany as a second case, we examined a positive case selection as we looked for relevant cases that discussed the issue within a comparable period of time and share further scope conditions (especially EU membership and presence of a major aviation hub[3]) but differ most on the dependent variable. The development in the German case displays stability (positive case) whereas the Netherlands has long represented a case of failed implementation (negative but possible case) (Blatter and Haverland 2012, ch. 3) (Table 1). Furthermore, the two countries are interesting since they mutually are main point of references in public debates on the aviation taxes. In terms of research design, this case selection, ultimately, forms a *most similar cases with different outcomes design* (Berg-Schlosser and De Meur 2009).

The data collection relied on the analysis of a comprehensive number of documents including election programmes, coalition agreements, parliamentary documents as well as media reports. Based on the terms commonly used for the tax in the two countries ("vliegbelasting" and "Luftverkehrsabgabe"), national parliamentary databases have been scrutinised in order to reproduce the policy-making processes around the ticket taxes in an inclusive manner. To identify the relevant media articles, two media databases have been used (Dow Jones Factiva and Nexis Uni). The research has been complemented by a literature review on aviation transport policy. For data analysis, we applied an "inductive process tracing" (Falleti and Mahoney 2015) as we sifted relevant information from the various documents, put this information in chronological order and first afterwards sorted it guided by the PIDA-dimensions. Gerring (2017, ch. 8.2) refers to this mode of analysis quite generally as "qualitative analysis," and it has been applied successfully elsewhere (see e.g. Müller and Thurner 2017). Thus, we produced "thick" chronological case descriptions (Blatter and Blume 2008) on the policy evolutions in both countries.

## The Dutch *Vliegbelasting*: A policy round trip that ultimately looped the loop

The Netherlands is considered a busy bee regarding environmental policy-making (Liefferink, et al. 2009; Duit 2016). Therefore, it is no surprise that they were among the first movers in Europe regulating the national aviation sector. Following the elections from 2006, the new government of the conservative *Christen-Democratisch Appèl* (CDA), the social democratic *Partij van de Arbeid* (PvdA) and the Christian-orthodox *ChristenUnie* (CU) agreed in their coalition contract on the introduction of an aviation tax (*Source*: NL01[4]). This *vliegbelasting* (*English:* aviation tax) was part of a governmental programme aimed at an environmental "greening" of the Dutch

[3]Based on data from the *Airports Council International Europe,* for us a major aviation hub is present in a country if one or more airports in the period of investigation are consistently among the top 10 in the list of traffic volume, i.e., airports with an average number of more than 39.000.000 passengers per year.

[4]For the list of sources, *see* Supplementary Material.

**Table 1.** Presence of aviation taxes in EU countries with major aviation hubs as of July 2021

| Country | Major Aviation Hubs (2008–2019) (IATA-Codes) | Aviation tax (tax level, year of adoption) |
|---|---|---|
| France | CDG | *yes* (low, 1999) |
| Germany | FRA, MUC | *yes* (moderate, 2011) |
| Italy | FCO | *yes* (low/moderate, 1993) |
| Netherlands | AMS | *yes* (moderate, 2008)<br>*no* (2010–2020)<br>*yes* (low, 2021) |
| Spain | MAD, BCN | *no* |
| UK | LHW, LGW | *yes* (high, 1994) |

tax system based on the *polluter-pays*-principle (NL02, NL03, NL07). The Ministry of Finance stressed the need to create incentives for environmentally friendly behaviour among citizens and to internalise environmental costs into prices (NL07, NL17). From the beginning, the argumentation was related first and foremost to environmental reasons, and only secondly – and to a much smaller extent – to the fiscal argument of tax revenue (NL05, NL17). At the end of 2007, the tax was adopted in both chambers and supported by multiple parties with only[5] the liberal *Volkspartij voor Vrijheid en Democratie* (VVD) and the populist radical right *Partij voor de Vrijheid* (PVV) as opposers (*Source*: NL21, NL31). The tax was finally implemented by 1 July 2008 providing tax rates differentiated by two categories: € 11.25 for destinations that lie within the European Union or that are less than 2,500 km from the Dutch airport of departure; and € 45.00 for all other destinations (Vliegbelasting, Art. 36re, NL04). For the next years, the revenue of the tax was expected to amount € 350 million per year (estimated for 2009–2011) and € 179 million for the remaining half in 2008 (NL17). In socioeconomic terms, the government estimated that the growth of the aviation sector is only to be delayed but that no losses of existent jobs will occur[6] (NL17, NL22). Ecologically, the tax should lead to a decreasing number of passengers, less flight movements and less harmful emissions (NL17). From the beginning of the legislative process, the *vliegbelasting* was very contested.

In parliament, above all, the VVD and the PVV argued persistently against the tax seeing it as part of "de groene manie van dit cabinet" (*English*: "the green obsession of the cabinet," Mark Rutte, VVD, NL26). Implying its negative economic *and* environmental impacts, the parties stimulated parliamentary debates on and submitted (unsuccessful) motions against the tax (NL05, NL06, NL19, NL23, NL24, NL25). One main argument was that the tax would not even have a positive environmental effect since higher ticket prices made Dutch passengers rather go to foreign airports (by car) instead of flying less (NL19, NL30).

[5]Other parties (PvdD, SP) neither did vote for the annual budget plan but had voiced support for the plan of an aviation tax. In the first chamber, the PVV did not hold any seats at that time.

[6]Specified figures provided by *Significance* research institute and confirmed by the *Netherlands Bureau of Economic Policy Analysis*) indicated that at Schiphol in 2011, there would be 8-10 % less passengers with the tax in place than without the tax. For regional airports, the prognosis indicated 11–13 % less passengers. Any bigger effect on the Dutch economy as a whole was estimated as improbable (NL18).

Most naturally, the entire aviation industry but also the tourism sector opposed the tax and campaigned against it before and after its implementation applying the whole portfolio of lobbying such as begging letters, commission of scientific studies and protests of the employees of the aviation and tourist branch which was supported by the big Dutch trade unions (NL25, NL33[7]). In February 2008, Ryanair and the airport Maastricht-Aachen took legal actions and brought the debate over the aviation tax to the court (Faber and Huigen 2018). The plaintiffs perceived the tax as unlawful state aid as the exceptions made for transfer and transit passengers favour certain airports and airlines and therefore suggested its incompatibility with European law. Additionally, the two parties, more generally, questioned the compatibility with the Chicago Convention (see below), but, in the end, the court decided in line with the governmental argumentation (Faber and Huigen 2018).

Despite this overall headwind, the government had held its official line of argumentation and defended the tax referring to its environmental benefits and the lack of alternatives (NL06, NL07, NL30, NL23), even after first figures had showed a severe decrease of passengers at Schiphol (NL08, NL10, NL27). However, in February 2009, in the view of an intensifying global economic crisis, the Minister of Transport and Water management stated in the media that the aviation tax must be put under scrutiny to support the aviation sector (NL28). He specified his concerns and announced the government's decision to establish an inter-ministerial working group to investigate options to release pressure from the aviation sector and make Schiphol competitive again (NL28). The State Secretary of Finance, who had been responsible for introducing the tax, conceded such an examination of the tax, yet confirmed upon request clearly that the government had no intention to abolish the tax (NL28). In contrast, in March 2009, the government presented a stimulation package which among others measures led to the reset of the *vliegbelasting* to zero by 1 July 2009 and its abolishment later that year in the annual budget 2010 (NL12, NL29).

In 2017, the Dutch story of aviation taxes took another turn as the new cabinet under minister president Rutte revealed plans to reintroduce the *vliegbelasting* in its coalition agreement. This decision was unexpected as none of the four coalition parties had included the tax in their election manifestos – although some authors suggest an agenda-setting effect of the rising Green party, *GroenLinks*, which opted out of the coalition talks earlier that year (Buijtendijk and Eijgelaar 2020). In contrast, it is evident that it has been a state secretary from the liberal party *D66* who pressed ahead with the tax so that it has been introduced by 1 January 2021. During the legislative term, the tax has been adjusted several times[8] and at the end was set at a flat rate of € 7.45 per passenger per flight irrespective of other factors such as the flight distance and thus obtains a considerably lower level than the original tax from 2008 (NL16). From statements of the government, it becomes strikingly clear that this low tax level was motivated by political pragmatism in order to secure a parliamentary majority for the basic idea of greening taxation (NL15, NL30). Interestingly, even the experiences from the failed 2008 policy had been brought

[7]Here a group of aviation sector representatives took the opportunity of being called for an expertise on the aviation tax to express its distinct disagreement with it.

[8]E.g., the originally targeted taxation of cargo transport was abandoned.

forward by government's representatives (NL15, NL30). Furthermore, parliamentary discussions reveal that the aviation tax was only the third-best policy choice for the government to realise its plans of regulating the civil aviation sector. First, they looked into possibilities of promoting technological innovations of airplanes, e.g., by taxing airplanes according to their efficiency and fuels, and especially they investigated solutions on the pan-European level, e.g., by repeatedly addressing the respective commissioners and holding a conference on the specific topic of aviation taxes (NL13, NL14, NL15, NL30). Only as these efforts failed, they opted for the reintroduction of the aviation tax.

## The German *Luftverkehrsteuer*: A policy that stayed the course

In 2010, the Ministry of Finance presented the *Luftverkehrsteuer* (English: aviation transport tax) in a draft, that represented a quite comprehensive policy package to tackle the ramifications of the global economic crisis (*Source:* DE01). As part of this package, the main goal of the aviation tax was budget consolidation (DE01). Environmental motives have – if at all – been secondary for the conservative-liberal government and have been voiced only occasionally in parliamentary debates (e.g. DE05).

Against the votes of the three opposition parties, the policy package was adopted by the first chamber, the *Bundestag*, in October 2010 (DE05). It is important to note that the major target of the opposition's criticism was not the aviation tax but rather other elements of the policy package. In contrast, the three German *Länder* Rhineland-Palatinate, Berlin and Brandenburg sought to stop the tax in the second chamber and brought forward a number of legal and economic objections, among others by referring to the recent negative experiences in the Netherlands (DE08). However, they could not win the majority for their motion so that the law was finally adopted in December 2010 (DE02). By 1 January 2011 an aviation tax has come into force which in many aspects resembled the Dutch predecessor as it is calculated for each passenger departing from a German airport (LuftVStG §5, DE02) differentiated by three levels of distance and corresponding prices: € 8.00 for short-haul, € 25.00 for medium-haul and € 45.00 for long-haul flights (DE02). Since 2010, the tax rates have been adapted several times at slightly lower rates[9] and until April 2020 amounted around € 7.38, € 23.05 and € 41.49.

Although the aviation tax was not a particularly controversial issue in the *Bundestag*, it has been contested in the following years. While there have been most natural disagreements between environmental NGOs and aviation sector's businesses (i.e. *Lufthansa*, *Air Berlin, Ryanair, airport operators*) as well as their associations, an increasingly severe resistance has originated from federal state representations. In particular, Rhineland-Palatinate stands out in this regard as it has continuously promoted motions against the tax, initiated a resolution in cooperation with the aviation industry and in 2014 even went to the constitutional court against the law. The court, however, followed earlier jurisdiction (e.g. in the Netherlands, *see above*), dismissed the case and thereby confirmed the legal position around the tax (DE11) (Faber and Huigen 2018). However, the coalition of

[9]First and foremost, these reductions are due to an agreement with the aviation sector that burdens of the aviation tax and the European emission trading system should not exceed € 1 billion in total.

opponents in the *Bundesrat* had grown, so that following an initiative of Bayern, Hesse, Lower Saxony and Saxony, in November 2012, the chamber urged the government to abolish the tax immediately (DE10). The government, however, adhered to its position, and, especially, the attitude of the Ministry of Finance can be described as uncompromising since the annual tax revenue of around € 1 billion was an important element of its overall consolidation policy (Saalfeld and Zohlnhöfer 2015). Critical voices by other Ministers (of Economic Affairs or Transport) did not carry enough weight in comparison to the Minister of Finance's influential position (e.g. Murswieck 2015).

The new coalition of Christian Democrats and Social Democrats committed themselves to continue the consolidation course and, in this context, also has kept the aviation tax. Since the tax is hardly an issue in the following legislation and neither in the election 2017 (DE15-18), it persists with only some already indicated adaptations of its actual rates. First, in 2019, in light of an intensifying discussion on climate mitigation policies the aviation tax regained attention and, from April 2020 on, the federal government raised the rates considerably to € 12.90, € 32.67 and € 58.82 as part of its climate programme (DE03, DE04).

## Analysis

Comparing the policy developments in the two countries (Table 2), two questions are interesting for our analysis of instrument choice from the PIDA perspective: why was the tax introduced in the first place and why did the tax, which was so similarly designed in both countries, persist in Germany while it was quickly abolished in the Netherlands and reintroduced on a considerably lower tax level more than 10 years later?

The explanatory factor *instrumental alternatives* refers to the question whether political actors have real and realisable policy alternatives at hand. It is closely interconnected with the factor of *institutions* which regularly limits available national policy options. For the regulation of aviation transport, a number of alternative instruments[10] might be discussed in the political discourse but in the decision situation the scope for instrument change is limited due to its global and European *institutional* embedding and resulting path dependency.

One of the most important institutions for aviation policy is the Chicago *Convention on International Civil Aviation* (CICA). In 1944, this convention established rules for civil aviation that are binding under international law to facilitate the international exchange of people in peacetime and to boost air traffic. Thus, the convention acts as a strong institutional filter in the sense of path dependency, and by its contradictory motive, makes the introduction of political instruments aimed at restricting air traffic more difficult. Among other things, it stipulates that kerosene on board of landed aircrafts may not be taxed (CICA, Art. 24a). Following this provision, it also has become a standard clause in the important air service agreements (ASA) that aircrafts from the contracting countries are allowed to refuel tax-free (Conrady et al. 2019). Hence, comprehensive tax solutions for international aviation are practically ruled out. However, *within*-states taxes are allowed and

[10]For available national policy options, *see* Larsson et al. 2019.

**Table 2.** Evolutions of aviation taxes in the Netherlands and Germany 2008–2021

| Country | 2008–2009 | 2010–2011 | 2011–2017 | 2017–2020 | 2020–2021 |
|---|---|---|---|---|---|
| Netherlands | Introduction of the tax for environmental reasons | Abolishment of the tax for economic reasons | Persistence of decision – low saliency of the topic | Reintroduction of the tax for environmental reasons | Persistence of decision despite corona pandemic |
| Germany | ———————— | Introduction of the tax for economic reasons | Persistence of decision – low saliency of the topic | Raise of the tax for environmental reasons | Persistence of decision despite corona pandemic |

regularly applied, e.g., in the United States, Norway or Japan. In the EU, since 2005 the Energy Taxation Directive (2003/96/EC) entitles EU-member states to implement taxes on kerosene within their territories but also in bilateral agreements (Art. 14b) while at the same time in its preamble it advises against doing so in light of international agreements (§ 23) (Conrady et al. 2019).

Concerning climate change mitigation measures specifically, it is striking that the pioneering Kyoto protocol conceded measures for the international aviation to the *International Civil Aviation Organisation* (ICAO) and not to national governments (Art. 2, paragraph 2 UNFCCC 1997)[11]. Nevertheless – or even in response to the ICAO's inertia (Birchfield 2015) – from 2012 on the EU has integrated the inner-European aviation transport in the European Emission Trading System (ETS) (2008/101/EC) (Efthymiou and Papatheodorou 2019) which institutionally limits member states' options to adopt national measures. The more recent efforts of the Dutch government to enforce further pan-European regulation are here illustrative. Thus, despite some easing tendencies in most recent times[12], institutionally, we may conclude a tenacious path dependency that is relevant for aviation policy in both countries and that in both cases made policymakers choose very similarly designed policies. Seen through the lens of PIDA, institutional factors limit the range of actually available policy options for policymakers.

Interestingly, the actually addressed *problem structures* differ clearly between the countries and over the course of the years, whereas the Dutch government at both occasions primarily has targeted a greening of the tax system and only secondarily refers to tax revenue (in the context of an even more ambitious overall goal to advance Dutch society, Wilp 2012), the German government explains the introduction of the aviation tax essentially with reference to its general goal of budget consolidation in the face of the economic crisis (Saalfeld and Zohlnhöfer 2015). If at all, environmental considerations have played only a minor role in the German case.

[11]This, ultimately, led to the implementation of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) which is to be implemented stepwise and has started its voluntary two-year pilot period in 2021 (*see* https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx, accessed 31/01/22) (critically see Larsson et al. 2019).

[12]In light of its European Green Deal, the European Commission announced to revise the Energy Taxation Directive and "remove outdated exemptions, e.g. in aviation and maritime transport" (COM/2021/550 final, 10).

This reversed hierarchy of goals is interesting as it prestructures governmental lines of reasoning in the view of similar external perturbations and sets different benchmarks for the public assessment of the policy, which in turn generate different feedback loops for policymakers. Focusing more recent developments, it is striking that, nowadays, both countries have adopted an environmental reasoning in order to justify the aviation tax or its raise. However, if we look at the considerably differing tax rates, path dependency has clearly played its role. Since the tax had been established in the German case on a medium level, it needed to be raised in order to unfold an emblematic effect, whereas in the Netherlands previous experiences let the government apply an only symbolic flat rate at a low level. Both stories highlight the primacy of economic interests in their own way and reveal highly conflicting arguments for the same tax. This not only corresponds to the fundamentals of PIDA which suggest that "already existent policy solutions seek their problems" (Töller and Böcher 2017, 548; authors' own translation) but it also confirms Hahn's ideas on eco-tax choices (2013), that taxes were not imposed to provide incentives for more environmentally friendly behaviour, but to generate revenue for the state budget and that economic motives engender institutional paths for environmental policy that endure (see above).

Regarding *situational aspects*, the global economic crisis, which climaxed from the end of 2008 until spring 2009, must be seen as the central event in the beginning of the period of investigation. In both the Netherlands and Germany, the overall GDP per capita growth had substantially decreased. If one looks only at the Dutch case, the simple argument could be that the tax was introduced in sound economic times and as these had changed, conflicting goals had to be reassessed and, ultimately, the tax had to be removed. However, the insights of the German case, where a very similar policy not only was adopted first in the very same economic crisis but also survived these times of crisis, make the picture more complicated and rather dismiss this argument. Equally, it would not explain why both governments stick to their decisions to reintroduce or raise the tax for environmental reasons in the midst of another tense economic situation caused by the COVID-19 pandemic.

As one domestic *institutional* factor, we already identified previous policy decisions which begot path dependencies for instrument choice and their specific design, whereas international and supranational institutions are most similar for the two countries (EU and ICAO membership); it is worth looking at other national institutional differences and in particular at the actors involved in the process since PIDA indicates that it is important *how* external perturbations exert influence on and are filtered by endogenous factors, i.e., processed by domestic actors.

A major difference between the countries is its degree of federalism. Lijphart (2012) classifies Germany as a federal state whereas the Netherlands is semi-federal. In particular, it is relevant, that German Länder keep their public budgets partly independent from the federal level (e.g. Von Beyme 2017) and, therefore, are interested in independent revenues and economic activities as potentially stimulated by regional airports. These idiosyncrasies are most evidently reflected in the constellation of actors participating in the policy process.

*Actors* and their interests are at the centre of PIDA and may represent the main explanatory variable. According to classical partisan theory, key actors in national

policy-making processes are the incumbent political parties so that a change in the composition of government likewise results in a change in policies (Hibbs 1977; Schmidt 1996). Empirically, left parties have been affiliated with more state-interventionist approaches of policy-making, whereas right parties generally avoid state interventions such as taxes (ibid.). In the Dutch case, the initial introduction of the aviation tax corresponds to these assumptions of classical partisan theory. Although the CDA was the strongest party in government and Jan Peter Balkenende stayed prime minister for the fourth time in a row, the formation of the Christian-social government meant a serious shift to the left, especially in terms of economic issues and in contrast to the former coalition between CDA and the liberal VVD (Wilp 2012). The three-party-coalition was by no means a planned coalition as, in particular, CDA and PvdA had contested each other fiercely in the election campaign and the personal relation between the party leaders Balkenende and Bos was difficult (Wilp 2012), but setting a sustainable course for the aviation transport sector was something all parties had agreed on before[13] (*Source*: NL37-40). Yet, the abolishment of such a tax through the same coalition contradicts classical partisan theory. Equally contradicting are the findings from the German case where a conservative-liberal coalition introduced an entirely new tax and thus produced a significant policy change (Rixen 2015) – and, furthermore, this tax is kept under the continuous governmental dominance of the Christian Democratic party up until 2021.

A basis for explaining this puzzle can certainly be found in the special economic situation as well as in the different targets of the taxes in the two countries. However, the actual effects of the tax, i.e., higher tax revenue and burden of the aviation industry, as well as the reaction of the affected sectors had been quite similar so that it is still unclear why the tax could persist in Germany under difficult economic conditions while it did not in the Netherlands under similar conditions.

Approaches that go beyond classical partisan theory and include opposition parties in their analysis can help to shed light on this question (Seeberg 2013; Zohlnhöfer and Engler 2014; Abou-Chadi et al. 2020). Interestingly, from the beginning the Dutch government was confronted with a quite strong opposition against the tax by the VVD and the PVV which helped to keep the topic up on the political agenda both inside and outside the parliament. In the German case, such a parliamentary opposition was missing completely since all three left opposition parties programmatically consented to the tax and could criticise only details from an environmental perspective (e.g. DE06, DE07). Only the Liberals openly opposed the aviation tax but were voted out the *Bundestag* in 2013. Therefore, a nucleus for a coalition against the tax never came into being.

This could not even be compensated by German state governments which expand the range of relevant actors in German federalism and, as described above, made serious efforts to fight the tax before and after its introduction[14]. Instead, German federalism had a reverse effect in this matter. In the German political system, the federal government and the *Länder* rely on quite independent budgets and

[13]While the PvdA made a rather broad state on this issue, the CDA pursued a European solution and the CU opted for the introduction of a national aviation tax (NL34-36).

[14]Interestingly, irrespective of their specific party ideologies.

**Table 3.** PIDA explanatory factors for variances in the evolution of aviation taxes in Germany and the Netherlands

| | Germany | | Netherlands | |
|---|---|---|---|---|
| PIDA dimension | 2010–2011 | 2017–2021 | 2008–2009 | 2017–2021 |
| *Instrumental alternatives and problem structure* | | | | |
| Instrumental alternatives | Practically none | | Practically none | |
| Addressed problem structures | Economy | Environment | Environment | Environment |
| Transboundary problem structures | Yes | | Yes | |
| *Situational Aspects* | | | | |
| Socio-economic conditions | Unstable, with regard to the economic crisis | At the end, unstable due to COVID-19 crisis | Unstable, with regard to the economic crisis | At the end, unstable due to COVID-19 crisis |
| *Institutions* | | | | |
| EU Membership | Yes | | Yes | |
| ICAO Membership | Yes | | Yes | |
| State organisation | Federal | | Semi-Federal | |
| *Actors* | | | | |
| Government | Centre-Right | Centre | Left-Centre-Right | Centre-Right |
| Influential opposition parties | No | Yes | Yes | Yes |
| Subnational governments | Yes | | No | |
| Powerful lobby organisations | Yes | | Yes | |
| National government's shares of main airports | No | | Yes | |

since the German federation had sold most of its stakes in airlines and airports, it was, in contrast to some of the *Länder*, less dependent on the aviation industry's growth (FIS 2016). Taking first and foremost care of the federal budget, the Federal Minister of Finance, therefore, could neglect negative sector-specific developments resulting from the aviation tax. In the Netherlands, the situation was the exact opposite as the Dutch state has held considerable shares in Schiphol so that the government felt the negative effects of its own action in a direct and facing an economic crisis also intense manner[15].

Additionally, the durability of the aviation tax in Germany can be connected to the *Nixon-goes-to-China*-argument. The fact, that in particular the traditionally business-friendly Christian Democrats advocated the tax, has made it extraordinary difficult for lobby organisations to deploy any influence on the government. In the Dutch case, the ties between aviation industry and the government appeared considerably closer forming an "iron triangle" between Schiphol, the Royal Dutch Airlines (KLM) and the ministry of infrastructure (Buijtendijk and Eijgelaar 2020). In any case, this held true for the policy round trip in 2008 and 2009.

[15]*See* https://www.schiphol.nl/en/schiphol-group/page/shareholder-information/, accessed 31/01/22.

However, in the beginning of the 2020s, three things have changed that provide explanation for the reintroduction of the tax: first, aviation interests seem to have lost their leverage on the ministry (Buijtendijk and Eijgelaar 2020); second, as in the German case, parties taking strong environmental positions have increasingly gained influence; and third, the *Nixon-goes-to-China*-argument could equally be applied to the cabinet led by the VVD and especially prime minister Rutte who took a strong stand against the original tax from 2008.

The effect of lobbyism, overall, remains a rather intangible subject for research. Since in both cases, representatives of the aviation and tourist sectors took action against the tax and the threat potential of the two national aviation sectors can be deemed similar, from a comparative perspective we are inclined to relate any possible impact back to party behaviour reflecting the dependence of interest organisations on governments' responsiveness (Woll 2007). However, any further independent influence can be neither rejected nor confirmed within the scope of this article.

## Conclusion

Our comparative analysis shows that environmental policy instrument choice depends on several factors. The PIDA has proved useful in analysing the different policy outputs in the two states and reveals a configurational causality that can explain aviation policy instrument choice in two European countries (Table 3). Firstly, it is striking that the same policy was applied to address different problems and that actual options change over the course of time so that environmental rationales seemingly have become more influential. Secondly, however, these environmental rationales still have to be embedded in economic reasoning. The considerable raise of the German aviation tax in 2019 has only been possible as it continues the path of an economically motivated policy and the reintroduction of the *vliegbelasting* in the Netherlands has evidently been shaped by economically derived constraints. Thus, in line with classic instrument choice literature (see above, e.g. Hahn 2013) the primacy of economy appears to be continuously valid. Thirdly, different configurations of party competition have played a pivotal role and underscore the importance of looking at partisan effects beyond governmental parties (e.g. Seeberg 2013). As well, *new* instruments like the aviation tax by no means replace other existing regulations – here the aviation taxes in both countries have been added to existing aviation policy like the European ETS.

Fundamentally, it is evident that instrument choice with the objective of regulating transport volume in the aviation sector is strongly shaped by institutional factors that constrain the number of instruments available. However, as environmental concerns have gained considerably in political importance, these institutions are getting in a state of flux. In the EU, a revision of the energy taxation directive and the ETS is on the agenda calling for future research to address the interactions of EU- and nation-state level in more depth and examine if a "regulatory cooperation" in aviation transport policy will take place (Holzinger and Knill 2004). Furthermore, the external validity of our investigation is clearly limited, although potentially a generalisation across other cases in which an aviation tax has been

discussed is possible, so that an examination of the identified factors beyond the two cases at hand is most appealing. Thus, our study can be understood as a first part of a *layered generalisation* (Rohlfing 2012, ch. 9.3) which increases the generalisability step by step by transforming scope conditions to variables in order to add a new layer of cases to the study. A promising step would be to relax the scope condition of time or problem structure, i.e., presence of a major aviation hub, and apply the findings to further positive EU-cases in which an aviation tax has been introduced (*time*: France, Italy; *problem structure*: Austria, Sweden).

As our analysis shows, this future research can be fruitfully guided by the PIDA which has revealed the *political* aspects of instrument choice and elucidated that governments can by no means carry out rational policy design here. Thus, the factors described by PIDA can also be used to further develop policy design approaches as they especially integrated aspects of what Howlett recently called the often neglected "dark side" of policy-making (Howlett 2021). Regarding its limitations, just as other heuristics, PIDA leaves some vagueness about specific causal mechanisms of the individual factors but also their interactions. This has to be investigated deductively with support of specific theories (Slavici 2021) or inductively as in this study.

Finally, our comparative case study contributes to the broader research on sustainable transitions in which despite positive recent developments a deeper understanding of the policy process and related constellations of power interests and institutions, is still needed (Normann 2015; Köhler et al. 2017). Aviation transport, in particular, can be understood as an increasingly symbolic area for this (Becken et al. 2021) pointing to questions of to which extent and for what reasons the state enforces environmentally oriented regulation. From our analysis, explanations do not indicate any further turnaround in the ongoing priority struggle between environmental and economic considerations, while the back and forth on aviation taxes actually shows that politics here is by no means always problem-solving-oriented, but follows other rationalities. A factually rational choice of instruments is not to be expected.

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## References

**Abou-Chadi T, Green-Pedersen C and Mortensen PB** (2020) Parties' Policy Adjustments in Response to Changes in Issue Saliency. *West European Politics*, **43**, 749–771.

**Bähr H** (2010) *The Politics of Means and Ends: Policy Instruments in the European Union*. Farnham: Ashgate.

**Becken S, Friedl H, Stantic B, Connolly RM and Chen J** (2021) Climate Crisis and Flying: Social Media Analysis Traces the Rise of "Flightshame". *Journal of Sustainable Tourism*, **29**, 1450–1469.

**Berg-Schlosser D and De Meur G** (2009) Comparative Research Design: Case and Variable Selection. In Rihoux B and Ragin C C (eds.), *Configurational Comparative Methods: Qualitative Comparative Analysis (Qca) and Related Techniques*. Los Angeles et al: Sage, 19–32.

**Birchfield VL** (2015) Coercion with Kid Gloves? The European Union's Role in Shaping a Global Regulatory Framework for Aviation Emissions. *Journal of European Public Policy*, **22**, 1276–1294.

**Blatter J and Blume T** (2008) In Search of Co-Variance, Causal Mechanisms or Congruence? Towards a Plural Understanding of Case Studies. *Swiss Political Science Review*, **14**, 315–356.

**Blatter J and Haverland M** (2012) *Designing Case Studies: Explanatory Approaches in Small-N Research*. Basingstoke: Palgrave Macmillan.

**Blatter J and Haverland M** (2014) Case Studies and (Causal-) Process Tracing. In Engeli I and Allison C R (eds.), *Comparative Policy Studies*. Basingstoke: Palgrave Macmillan, 59–83.

**Böcher M** (2010) Ecotax. In Mulvaney D and Robbins P (eds.), *Green Politics: An a-to-Z Guide*. Thousand Oaks (CA) a. London: Sage, 141–143.

**Böcher M** (2012) A Theoretical Framework for Explaining the Choice of Instruments in Environmental Policy. *Forest Policy and Economics*, **16**, 14–22.

**Böcher M and Töller AE** (2007) Instrumentenwahl Und Instrumentenwandel in Der Umweltpolitik: Ein Theoretischer Erklärungsrahmen.. In Jacob K, Biermann F, Busch P-O and Feindt P H (eds.), *Politik Und Umwelt*. Politische Vierteljahresschrift Sonderhefte. Wiesbaden: VS Verlag für Sozialwissenschaften, 299–322.

**Böcher M and Töller AE** (2012) *Umweltpolitik in Deutschland: Eine Politikfeldanalytische Einführung*. Wiesbaden: Springer VS.

**Böcher M and Töller AE** (2015) Inherent Dynamics and Chance as Drivers in Environmental Policy? An Approach to Explaining Environmental Policy Decisions. Paper presented at the International Conference on Public Policy, Milan. http://www.ippapublicpolicy.org/file/paper/1434985890.pdf (accessed 31 January 2022).

**Bressers H and Klok P-J** (1988) Fundamentals for a Theory of Policy Instruments. *International Journal of Social Economics*, **15**, 22–41.

**Bressers HThA and Huitema D** (1999) Economic Instruments for Environmental Protection: Can We Trust the "Magic Carpet"?. *International Political Science Review*, **20**, 175–196.

**Buijtendijk H and Eijgelaar E** (2020) Understanding Research Impact Manifestations in the Environmental Policy Domain. Sustainable Tourism Research and the Case of Dutch Aviation. *Journal of Sustainable Tourism*. doi: 10.1080/09669582.2020.1760872.

**Capano G and Howlett M** (2020) The Knowns and Unknowns of Policy Instrument Analysis: Policy Tools and the Current Research Agenda on Policy Mixes. *Sage Open*, **10**. doi: 10.1177/2158244019900568.

**Capano G, Pritoni A and Vicentini G** (2020) Do Policy Instruments Matter? Governments' Choice of Policy Mix and Higher Education Performance in Western Europe. *Journal of Public Policy*, **40**, 375–401.

**Clement F** (2010) Analysing Decentralised Natural Resource Governance: Proposition for a "Politicised" Institutional Analysis and Development Framework. *Policy Sciences*, **43**, 129–56.

**Conrady R, Fichert F and Sterzenbach R** (2019) *Luftverkehr: Betriebswirtschaftliches Lehr-Und Handbuch*. 6 ed. München: Oldenbourg Verlag.

**Cullenward D and Victor DG** (2020) *Making Climate Policy Work*. Cambridge: Polity Press.

**Duit A** (2016) The Four Faces of the Environmental State: Environmental Governance Regimes in 28 Countries. *Environmental Politics*, **25**, 69–91.

**Efthymiou M and Papatheodorou A** (2019) Eu Emissions Trading Scheme in Aviation: Policy Analysis and Suggestions. *Journal of Cleaner Production*. doi: 10.1016/j.jclepro.2019.117734.

**Eliadis P, Hill MM and Howlett M** (2005) *Designing Government: From Instruments to Governance*. Montreal: McGill-Queen's University Press.

**EU**. (2019) Taxes in the Field of Aviation and Their Impact - Final Report. ed. Directorate-General for Mobility and Transport. Luxembourg: Publications Office of the European Union.

**Faber J and Huigen T** (2018) *A Study on Aviation Taxes*. Delft: CE Delft.

**Falleti TG and Mahoney J** (2015) The Comparative Sequential Method. In Mahoney J and Thelen K (eds.), *Advances in Comparative-Historical Analysis*, Cambridge: Cambridge University Press, 211–239.

**Fichert F, Forsyth P and Niemeier H-M** (2020) Air Transport and the Challenge of Climate Change–How Aviation Climate Change Policies Work. In Fichert F, Forsyth P and Niemeier H-M (eds.), *Aviation and Climate Change: Economic Perspectives on Greenhouse Gas Reduction Policies*. London a. New York: Routledge, 47–78.

**FIS, Forschungsinformationssystem**. (2016) Private Flughäfen Im Vergleich Zu Flughäfen in Öffentlicher Hand.

**Forsyth P** (2020) Review and Further Directions. In Fichert F, Forsyth P and Niemeier H-M (eds.), *Aviation and Climate Change: Economic Perspectives on Greenhouse Gas Reduction Policies*. London a. New York: Routledge, 229–265.

**Gerring J** (2017) *Case Study Research: Principles and Practices*, 2 ed Cambridge: Cambridge University Press.

**Goertz G and Mahoney J** (2012) *A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences*. Princeton a. Oxford: Princeton University Press.

**Gössling S and Humpe A** (2020) "The Global Scale, Distribution and Growth of Aviation: Implications for Climate Change." *Global Environmental Change*, **65**. doi: 10.1016/j.gloenvcha.2020.102194.

**Hahn RW** (1989) Economic Prescriptions for Environmental Problems: How the Patient Followed the Doctor's Orders. *Journal of Economic Perspectives*, **3**, 95–114.

**Hahn RW** (2013) *A Primer on Environmental Policy Design*. Milton, Abingdon: Routledge.

**Hall PA** (2003) Aligning Ontology and Methodology in Comparative Politics. In Rueschemeyer D and Mahoney J (eds.), *Comparative Historical Analysis in the Social Sciences*. Cambridge Studies Comparative Politics. Cambridge: Cambridge University Press, 373–404.

**Hibbs DA** (1977) Political Parties and Macroeconomic Policy.. *American Political Science Review*, **71**, 1467–1487.

**Holzinger K and Knill C** (2004) Competition and Cooperation in Environmental Policy: Individual and Interaction Effects. *Journal of Public Policy*, **24**, 25–47.

**Howlett M** (2019) *Designing Public Policies: Principles and Instruments*. Milton, Abingdon: Routledge.

**Howlett M** (2021) Avoiding a Panglossian Policy Science: The Need to Deal with the Darkside of Policy-Maker and Policy-Taker Behaviour. *Public Integrity*. doi: 10.1080/10999922.2021.1935560.

**Jordan A, Wurzel RKW and Zito AR** (2013) Still the Century of 'New' Environmental Policy Instruments? Exploring Patterns of Innovation and Continuity.. *Environmental Politics*, **22**, 155–173.

**Jordan A, Wurzel RKW and Zito AR** (eds.) (2003) *'New' Instruments of Environmental Governance? National Experiences and Prospects*. Milton, Abingdon: Routledge.

**Kiser LL and Ostrom E** (1982) The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches. In Ostrom E (ed.), *Strategies of Political Inquiry*. Beverly Hills, CA: Sage, 179–222.

**Köhler J, Geels F, Kern F, Onsongo E and Wieczorek A** (2017) A Research Agenda for the Sustainability Transitions Research Network. *Sustainability Transitions Research Network (STRN), Sustainable Consumption Institute, University of Manchester: Manchester, UK*.

**Ladu L** (2020) The Governance of Genome Editing Techniques for the European Bio-Based Industry. *Journal of Environmental Policy & Planning*. doi: 10.1080/1523908X.2020.1850247.

**Larrue C** (1995) The Political (Un) Feasibility of Environmental Economic Instruments.. In Dente B (ed.), *Environmental Policy in Search of New Instruments*. Luxembourg: Springer-Science, 37–54.

**Larsson J, Elofsson A, Sterner T and Åkerman J** (2019) International and National Climate Policies for Aviation: A Review. *Climate Policy*, **19**, 787–799.

**Lee DS, Fahey DW, Forster PM, Newton PJ, Wit RCN, Lim LL, Owen B and Sausen R** (2009) Aviation and Global Climate Change in the 21st Century. *Atmospheric Environment*, **43**, 3520–3537.

**Lee DS, Fahey DW, Skowron A, Allen MR, Burkhardt U, Chen Q, Doherty SJ, Freeman S, Forster PM, Fuglestvedt J, Gettelman A, De León RR, Lim LL, Lund MT, Millar RJ, Owen B, Penner JE, Pitari G, Prather MJ, Sausen R and Wilcox LJ** (2021) The Contribution of Global Aviation to Anthropogenic Climate Forcing for 2000 to 2018. *Atmospheric Environment*. doi: 10.1016/j.atmosenv.2020.117834.

**Liefferink D, Arts B, Kamstra J and Ooijevaar J** (2009) Leaders and Laggards in Environmental Policy: A Quantitative Analysis of Domestic Policy Outputs. *Journal of European Public Policy*, **16**, 677–700.

**Lijphart A** (2012) *Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries*. New Haven a. London: Yale University Press.

**Linder SH and Peters BG** (1989) Instruments of Government: Perceptions and Contexts. *Journal of Public Policy*, **9**, 35–58.

**Mann RF and Roberts TM** (eds.), (2018) *Tax Law and the Environment. A Multidisciplinary and Worldwide Perspective*. Lanham: Lexington Books.

**Müller WC and Thurner PW** (2017) *The Politics of Nuclear Energy in Western Europe*. Oxford (UK): Oxford University Press.

**Murswieck A** (2015) Politische Führung Von Bundeskanzlerin Merkel in Der Christlich-Liberalen Koalition. In Zohlnhöfer R and Saalfeld T (eds.), *Politik Im Schatten Der Krise*. Wiesbaden: Springer VS, 169–190.

**Normann HE** (2015) The Role of Politics in Sustainable Transitions: The Rise and Decline of Offshore Wind in Norway. *Environmental Innovation and Societal Transitions*, **15**, 180–193.

**Ostrom E** (1990) *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

**Pelaez Jara M** (2020) The Ascending and Fading of a Progressive Policy Instrument: The Climate Change Factor in Southern Germany. *Water*, **12**(4). doi: 10.3390/w12041050.

**Peters BG** (2018) *Policy Problems and Policy Design*. Cheltenham: Edward Elgar Publishing.

**Peters BG** (2019) *Institutional Theory in Political Science: The New Institutionalism*. Cheltenham: Edward Elgar Publishing.

**Rixen T** (2015) Hehre Ziele, Wenig Zählbares. In Zohlnhöfer R and Saalfeld T (eds.), *Politik Im Schatten Der Krise. Eine Bilanz Der Regierung Merkel 2009–2013*. Wiesbaden: Springer VS, 327–351.

**Rohlfing I** (2012) *Case Studies and Causal Inference: An Integrative Framework*. Basingstoke: Palgrave Macmillan.

**Rothengatter W** (2020) Intermodal Dimension of Climate Change Policy. In Fichert F, Forsyth P and Niemeier H-M (eds.), *Aviation and Climate Change: Economic Perspectives on Greenhouse Gas Reduction Policies*. London a. New York: Routledge, 181–201.

**Saalfeld Thomas and Zohlnhöfer R** (2015) Von Der Wunschkoalition Zur Krisengemeinschaft?. In Zohlnhöfer R and Thomas S (eds.), *Politik Im Schatten Der Krise*. Wiesbaden: Springer VS, 9–24.

**Salamon LM** (ed.), (2002) *The Tools of Government: A Guide to the New Governance*. Oxford: Oxford University Press.

**Scharpf FW** (2000) *Interaktionsformen: Akteurzentrierter Institutionalismus in Der Politikforschung*. Opladen: Leske & Budrich.

**Schmidt MG** (1996) When Parties Matter: A Review of the Possibilities and Limits of Partisan Influence on Public Policy.. *European Journal of Political Research*, **30**, 155–183.

**Seeberg HB** (2013) The Opposition's Policy Influence through Issue Politicisation.. *Journal of Public Policy*, **33**, 89–107.

**Slavici M** (2021) Barrierefreiheit in Der Wohnungspolitik. Eine Analyse Auf Der Ebene Der Bundesländer. PhD, Otto-von-Guericke-University, 2021.

**Tarrow S** (2010) The Strategy of Paired Comparison: Toward a Theory of Practice.. *Comparative Political Studies*, **43**, 230–259.

**Töller AE and Böcher M** (2017) Wirtschaftsverbände in Der Umweltpolitik. In Schroeder W and Weßels B (eds.), *Handbuch Arbeitgeber-Und Wirtschaftsverbände in Deutschland*. Wiesbaden: Springer VS, 531–563.

**Tosun J and Workman S** (2017) Struggle and Triumph in Fusing Policy Process and Comparative Research. In Weible CM and Sabatier PA (eds.), *Theories of the Policy Process*, 4 ed New York: Westview Press, 329–362.

**UNFCCC, United Nations Framework Convention on Climate Change**. (1997) Kyoto Protocol to the United Nations Framework Convention on Climate Change. Kyoto.

**Vogelpohl T, Beer K, Ewert B, Perbandt D, Töller AE and Böcher M** (2021a) Patterns of European Bioeconomy Policy. Insights from a Cross-Case Study of Three Policy Areas. *Environmental Politics*. doi: 10.1080/09644016.2021.1917827.

**Vogelpohl T, Töller AE, Beer K and Böcher M** (2021b) Is Bioeconomy Policy a Policy Field? A Conceptual Framework and Findings on the European Union and Germany." *Journal of Environmental Policy & Planning*, **23**(2). doi: 10.1080/1523908X.2021.1893163.

**Von Beyme K** (2017) *Das Politische System Der Bundesrepublik Deutschland. Eine Einführung*, 12 ed. Wiesbaden: Springer VS.

**Wilp M** (2012) *Das Politische System Der Niederlande: Eine Einführung*. Wiesbaden: Springer VS.

**Woll C** (2007) Leading the Dance? Power and Political Resources of Business Lobbyists. *Journal of Public Policy*, **27**, 57–78.

**Woodside K** (1986) Policy Instruments and the Study of Public Policy. *Canadian Journal of Political Science/Revue canadienne de science politique*, **19**, 775–794.

**Wurzel RKW, Zito AR and Jordan AJ** (2013) *Environmental Governance in Europe: A Comparative Analysis of the Use of New Environmental Policy Instruments*. Cheltenham: Edward Elgar Publishing.
**Zohlnhöfer R and Engler F** (2014) Courting the Voters? Policy Implications of Party Competition for the Reform Output of the Second Merkel Government. *German Politics*, **23**, 284–303.

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