






RESEARCH ARTICLE

Autocracies and policy accumulation: the case of Singapore

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Abstract

The tendency of vote-seeking politicians to produce ever-more policies in response to the citizens' demands has been identified as a central driver of the process of "policy accumulation." If we accept this premise, policy accumulation should be a central feature of modern democracies but overall be less pronounced in autocracies. Due to its highly ambivalent nature, policy accumulation and its implications may thus constitute an important but so far neglected facets of the new system competition between democracies and autocracies. In this article, we test this argument in the context of the authoritarian regime of Singapore. Singapore is one of the very few autocracies that display elements of political competition and has a level of socio-economic development that is comparable to advanced democracies. Singapore thus constitutes a least-likely case for low levels of policy accumulation. By studying changes in Singapore's environmental policy over a period of more than four decades (1976 to 2020) and by contrasting the patterns observed with the policy developments in 21 OECD democracies, we find that autocratic regimes do indeed tend to accumulate less than democratic regimes. More precisely, we find that Singapore (1) has only produced about one-fourth of the environmental policy measures of an "average" democracy and (2) is constantly the country with the lowest level of policy accumulation in our sample. These findings hold even when controlling for alternative explanations, such as the effectiveness of the administration and the government's ability to opt for stricter and more hierarchical forms of intervention.

Keywords: autocracies; environmental policy; policy accumulation; Singapore

Introduction

In advanced democracies, policies continuously pile up. Policy stocks are growing over time, both across countries and sectors (Jakobsen and Mortensen 2015; Kosti and Levi-Faur 2019; Fernández-í-Marín et al. 2021). According to Adam et al. (2019), the central reason for this process of policy accumulation is the political incentive structure dominant in modern democracies: vote-seeking politicians

demonstrate responsiveness to their citizens' demands by constantly proposing new policies in the form of laws, regulations, or programs. Policies, in turn, create expectations and dependencies and thus are difficult to terminate or dismantle once they have been established. In consequence, democratic governments constantly tend to produce more policies than they eliminate – regardless of the exact policy sector in question (Hinterleitner et al. 2023).

If we accept this basic argument about the central drivers of policy accumulation, policy accumulation should be a central feature of modern democracies but far less pronounced in autocracies. In contrast to democracies, responsiveness to voter demands constitutes *no* essential feature in autocracies that brings forth political authority. Rather, elections in an authoritarian regime essentially serve the purpose of elite power-sharing and monitoring of popular support (Magaloni 2006). In this article, we test this reasoning. To do so, we examine the autocratic regime of Singapore as a *least-likely case* for the absence of policy accumulation. Although Singapore constitutes an autocratic system, it is one of the few autocracies that display clear elements of political competition and a level of socio-economic development that is comparable to advanced democracies. If the patterns of sectoral policy development in Singapore clearly deviate from those of advanced democracies, this would make a very strong case for similar or even more pronounced patterns of *non*-accumulation in other autocracies.

By studying changes in Singapore's environmental policy over a period of more than four decades (1976 to 2020) and by contrasting the patterns observed with the policy developments in economically similar 21 OECD democracies, we find that autocratic regimes tend to accumulate less than democratic regimes. More precisely, we find that Singapore has (1) only produced about one-fourth of the environmental policy measures of an "average" democracy and (2) is – except for the very beginning of our observation period – the country with the lowest levels of policy accumulation. These findings hold even when assessing alternative explanations such as Singapore's high level of administrative capacities, the ability of autocratic governments to opt for stricter and more hierarchical forms of intervention or distinctive patterns of regional development.

To elaborate on our argument in more detail, we proceed in the following steps: We start with a conceptual and theoretical discussion of responsiveness-driven policy accumulation and explain why democracies should, in general, accumulate more policies than autocracies, given their distinct dynamics of political competition and policy-making processes ("Policy accumulation in democracies and autocracies"). Next, we present our research design, laying out the case of Singapore and the utilized data ("Research design"). This will be followed by a discussion of the empirical findings and their comparison to the sample of democratic regimes ("Empirical analysis"). The concluding section summarizes the results and extends on potential implications ("Conclusion").

Policy accumulation in democracies and autocracies

There is a growing body of research that has identified policy accumulation as a ubiquitous feature of democratic systems (Hinterleitner et al. 2023). This

phenomenon has been captured by various concepts, including continuous rule growth, and policy layering (Hacker 2004; Thelen 2004; Howlett and Rayner 2013; Jakobsen and Mortensen 2015; Wellstead et al. 2016; Adam et al. 2019). All these concepts have been developed to capture the fact that over time, democratic governments adopt more policies than they abolish.

According to Adam et al. (2022), the constant production of public policies in response to societal demands is both a key virtue of and a challenge to democracies. While policy accumulation often positively reflects responsiveness to citizens' and interest groups' demands and, in consequence, modernization and progress, it also undermines democratic governance in two ways. First, policy accumulation inevitably creates more and more complex policy portfolios with often interacting and interdependent policy targets and instruments (Limberg et al. 2023). This, in turn, implies that a greater number of governmental interventions will *not* work out as planned and trigger policy controversies (Hinterleitner 2022, 3). As Bovens and 't Hart (2016, p. 654) put it, only "a part of this myriad of ambitions and activities unfolds as hoped (. . .) [while] [a]nother part throws up surprises, complications, delays, disappointments, and unintended consequences."

Second, policy accumulation can undermine government's implementation effectiveness. The constant production of new policies directly translates into new administrative burdens for the authorities in charge of implementation. More policies mean more implementation burdens for the authorities in charge of their execution and enforcement. If policies are adopted *without* the parallel expansion of administrative capacities, additional policies can directly translate into growing implementation problems (Knill et al. 2023). As Gratten et al. (2021, p. 2965) put it: the (over)production of public policies can shift the administration "from a Weberian to a Kafkaesque bureaucracy" if "too many and too frequent laws overload [. . .] the bureaucracy with too many acts to implement" (*ibid.*). The characteristic symptom of "bureaucratic overload" is that public authorities are "under-resourced relative to their responsibilities" (Dasgupta and Kapur 2020, p. 1316), resulting in the "failure to implement programs on a scale sufficient to meet the demand for benefits among citizens despite statutory entitlements" (*ibid.*).

As we will show in the following, policy accumulation is a fairly obvious phenomenon for democracies but is largely absent in autocratic systems. Policy accumulation and its implications may thus constitute an important but so far "neglected aspect of the new system competition between democracies and autocracies" (Hinterleitner et al. 2023, 14).

Political responsiveness in democracies: policy accumulation as the result of societal demands and political competition over supply

Although policy growth might also emerge from endogenous dynamics of rules breeding new rules (Weber 1972; Schulz 1998; March et al. 2000), the main driver of policy accumulation is the interplay between societal demands for governmental problem-solving and political competition over the supply of policies that respond to this demand. It is this interplay of the societal articulation of policy demands and the political contest on how to address these demands that ensures political responsiveness in democratic systems. These responsiveness dynamics in turn are

seen as the central driver of policy accumulation (Adam et al. 2019). The concept of policy accumulation hinges on political responsiveness – on citizens articulating political demands and government and parties to supply policies that feed new rules into the machinery of the policy-making process. It is against this background that developments like societal modernization, technological progress, or globalization as well as external events produce demand for and supply of new laws and regulations.

In electoral campaigns and beyond, political parties have strong incentives to portray themselves as actors who understand the people's concerns and present policy solutions that help alleviate social problems (Adam et al. 2019, 36). Although in principle political parties could decide to do nothing and keep the status quo in place, this option is often not very rewarding in electoral terms, because the party might run the danger of being accused of not getting anything done. Moreover, it is also unlikely that parties opt for the replacement of existing policies by new ones, which could principally avoid or reduce policy growth. This option is rarely feasible, as the termination of existing policies is usually not very rewarding politically. The vast literature on policy termination and dismantling also speaks of the difficulties of finishing off policies and regulations (Bardach 1976; deLeon 1978; Jordan et al. 2013), preventing such processes from effectively working against responsiveness-driven policy accumulation. Overall, this constellation implies that political parties have strong incentives to promote the addition of new policies rather than going for policy replacement or the preservation of the status quo.

This assumption of responsiveness-driven policy accumulation is well in line with prominent theories on political competition. According to Downs, politicians and parties promote policies for pursuing their own goals, namely gaining political power. This office-seeking behavior implies that, under conditions of democratic elections, parties propose and enact those policies preferred by the (median) voters (Downs 1968, 287). In a Schumpeterian perspective on elections, policy innovation plays a crucial role. Political parties come up with a “menu” of different policy ideas from which voters can choose. Successful policy innovations are then being picked and implemented in a process following the election cycles (Hindmoor 2008). Saliency theories of political contestation also point toward a link between political competition and responsiveness. Here, higher political competition, and concurrently the uncertainty about re-election chances, leads to a higher level of responsiveness to public issue preferences (Hobolt and Klemmensen 2005, 2008). Research on electoral pledges gives further credence to our argument. Mansergh and Thomson (2007) find that electoral pledges (policy proposals) are indeed important for political parties during electoral campaigns and also inform their policy-making once in government. Pledges, instead of being limited to the periphery of policy sectors, or being just a signaling tool for special interests, are being made “on the policy themes [parties] emphasize most” (Mansergh and Thomson 2007, 323; Bischof 2018). Costello and Thomson (2008) further find that parties who pledge to certain policies tend to compete indirectly with their competitors, meaning that different policy issues are emphasized and de-emphasized during elections. This signifies that party competition dynamics result in parties that specialize in promising new policies, and at large, that policy accumulation is “pledged” in most policy sectors each election cycle. Considering that in democracies, government

turnover and changes in cabinets and coalition partners are a common and usual occurrence, policy accumulation is further incentivized.

Political responsiveness in autocracies: policy accumulation resulting from democratic procedures and performance legitimation

In contrast to democratic regimes, similar dynamics of political responsiveness are absent or at least less developed in autocratic systems. For once, the medium of party competition through which political competition is moderated is largely absent, limited, or corrupted in most autocratic systems, as are corresponding legitimation processes through such elections. Yet, this does not mean that autocratic systems can completely ignore legitimacy concerns (Gerschewski 2013; Dukalskis and Gerschewski 2017). In this regard, Dukalskis and Gerschewski (2017) distinguish four major mechanisms of legitimation: indoctrination, passivity, performance, and democratic procedures.¹

The idea of ideological indoctrination as a method of claiming legitimacy has been emphasized in the totalitarianism discourse. Hannah Arendt (1973) saw ideology and terror as the fundamental essence of totalitarianism in all its forms. The indoctrination paradigm is not only part of “extreme” ideologies such as fascism or Soviet communism, but can also be found in less extreme forms like nationalism, religion, or socialism (Mansfield and Snyder 1995; Albrecht and Schlumberger 2004; Wintrobe and Ferrero 2009; Bondes and Heep 2012). However, as most of today’s autocratic regimes are not as totalitarian or isolated as North Korea, indoctrination alone can hardly be considered as a sufficient mechanism for ensuring political legitimation.

Another mechanism is to induce passivity within the populace by delivering basic needs and rents. The argument of passivity was first introduced by Linz (1964, 1975) as a critique of the then-dominant totalitarianism paradigm, and focuses on the depoliticization of the broader populace. In a modern sense, the passivity argument is related to the concept of the autocratic rentier state (Abulof 2017). Here, the population is bought off by rents that are extracted by the trading of the vast resources of the country, e.g., oil or rare minerals; in essence, this means that autocratic regimes can buy legitimacy due to resource-richness by satisfying basic material needs of their citizens.

While the passivity argument emphasizes the pattern of political legitimation via the depoliticization route, other scholars have pointed to the legitimation effects of regime performance. Prominently, many autocratic regimes in East Asia anchor their legitimacy on claims and deliverance of a certain level of performance and

¹In addition to these four mechanisms, Ding (2020) recently suggested the concept of performative governance. The latter is defined “as the state’s theatrical deployment of visual, verbal, and gestural symbols to foster an impression of good governance before an audience of citizens” (Ding 2020, 530) when the bureaucracy has more to do than it can effectively handle (and is under strong public scrutiny). This is both *not* relevant for the case of Singapore. First, the government has put little burden (policies) on the country’s environmental administration. Second, Singapore’s bureaucratic capacities are typically considered to be very high (Kaufmann et al. 2010), so that the overall chance that the (few) burdens imposed on the bureaucratic apparatus exceed its “logistical ability and political authority to perform its various functions” (Ding 2020, 530) is actually quite low.

governmental effectiveness (Chang et al. 2013). Chan's (1971) historical review of the formative years of independent Singapore under the People's Action Party (PAP) and its first leader, Lee Kuan Yew, also points toward the direction of an autocratic regime legitimizing itself by highlighting its economical, political, and social successes. This onus on being the effective administrator and policy-maker has left a long-lasting mark on Singapore and its dominant ruling party and has led the actual circle of decision-makers to remain quite small (Quah 1984; Leong 2000b). Other examples include South Korea under Park Chung Hee (Kim and Vogel 2011) and Taiwan under the Kuomintang (Hood 2020) – both countries becoming democracies and highly developed later on. In general, Chang et al. (2013) find that this performance-based type of legitimacy is not only limited to claims over economic prosperity and development but also extends to the perceived performance of the regime in terms of responsiveness, the fight against corruption, and the treatment of common people with regard to the law. This line of research also touches upon the notion of credible commitments and regime responsiveness toward crucial supporting groups. In the realm of social policy, connections have been found linking regime survival of autocracies and welfare state creation (Knutsen and Rasmussen 2018); the mere existence of such welfare state policies already implies that autocratic regimes also need to be responsive in terms of providing sufficient levels of welfare and social security.

Lastly, modern times have given rise to new forms of authoritarianism that incorporate elements of electoral and democratic regimes. Here, competitive forms of authoritarianism have allowed for elections in order to give the ruling class the façade of democratic legitimacy by way of the ballot box (Dukalskis and Gerschewski 2017). Furthermore, procedural “democratic” elections (Levitsky and Way 2002; Schedler 2006; Way 2015; Buzogány et al. 2016), enable autocratic regimes to be more responsive toward their citizenry, and to legitimate their continued rule based on popular will, acknowledged via elections. Case study evidence in electoral and competitive regimes has shown that democratic institutions indeed possess some meaning in autocracies. Negative electoral shocks to ruling parties can predict, for instance, increases in education and social welfare spending and decrease in military spending following elections while there is no policy effect leading up to elections (Miller 2015). Magaloni (2006) also suggests in a study on the *Partido Revolucionario Institucional (PRI)*'s rule in Mexico that budget cycles exist surrounding non-competitive elections, with government spending rising before elections and austerity being more likely after elections; similar results of electoral budget cycles can be observed for Mubarak's Egypt (Blydes 2011). No matter the direction the budget takes, in the end, one can observe that elections can lead to responsive behavior in autocracies – at least in terms of budget allocations.

In sum, these considerations suggest that we should expect responsiveness-driven effects on policy development only for those autocracies that are characterized by legitimation strategies that are based on performance or on democratic procedures, and that hence are characterized by hegemonic party regimes. Miller (2015) argues that elections in autocratic regimes not only provide the dictator the symbolic laurels of democracy but also function as a way to closely ascertain the citizenry's needs and demands, and their willingness to achieve certain

policy concessions. In this regard, Magaloni (2006) shows that elections in autocracies can serve as a tool to “monitor” the distribution and levels of support or opposition to the hegemonic regime, this way enabling corresponding budget allocations. Cassani (2017) also hypothesizes on the role institutions play in delivering the adequate social services for the public in the service of pursuing performance legitimacy, claiming that with the introduction of participatory and semi-competitive institutions, the deliverance on matters of health care and education is eased. All in all, instances of responsiveness seem to be related to performance and procedural electoral legitimation, especially in competitive autocratic regimes. Relying on these legitimation patterns also allows hegemonic regimes to deal with the opposition, with provinces and districts more favorably inclined toward opposition parties being, in general, disadvantaged from the spoils of redistribution and development (Magaloni 2006; Gandhi 2008; Blaydes 2011).

Yet, the question remains if performance and limited electoralism induce autocratic responsiveness patterns at a level that is comparable to democratic responsiveness. This question has so far not been addressed in the relevant literature, apart from a rudimentary discussion of potential policy targets of autocratic responsiveness. Gandhi (2008) for instance argues that authoritarian regimes are primarily responsive in the area of legal rights, but fail to develop policies in the welfare, education, or healthcare sectors (Gandhi 2008). For several reasons, we expect that levels of political responsiveness and – relatedly – levels of policy accumulation in autocratic regimes are less pronounced than for democracies, even, if we consider competitive, electoral autocracies.

First, even under conditions of competitive authoritarianism, a democratic regime retains more viable, and also rival, political parties as opposed to either a dominant ruling party, a one-party regime, or an “elected” autocratic executive. Contrary to democratic elections that provide the essential mechanism of political competition and bringing about changes in government, elected legislatures in autocracies primarily serve as an avenue for spoil allocation, co-optation, and regime stability (Magaloni 2006; Gandhi and Przeworski 2007). Second, policy-making processes in autocratic regimes are less publicly debated and less inclusive than in democratic regimes. As opposed to most democratic regimes, policy decisions are taken within a smaller circle of decision-makers (Quah 1984; Leong 2000b; Martus 2017) and the citizenry participates mostly only in a peripheral manner (Leong 2000a; Ortmann 2012). Only when the ruling elite itself has differing ideas on policy outcomes can bodies, like legislatures, function as a broader setting of political decision-making (Gandhi et al. 2020). Autocracies, in other words, can supply policy preferences of the rulers, but find it difficult to open an effective avenue for the articulation of political demands. Third, when looking at stable democracies and autocracies, autocratic governments have a longer time in office than democratic governments, meaning that the potential for large policy changes resulting from changes of government is lower for autocratic regimes (Wright and Bak 2016). Autocracies are also less likely to have coalition governments, which also slows down policy growth since fewer political compromises have to be made between political rivals. In both cases, the small actual body of decision-makers in authoritarian systems incentivizes long durable rule and as few popular concessions as possible (Bueno de Mesquita et al. 2005).

This indicates that the participatory elements in electoral autocracies or the drive for performance legitimacy by autocrats via policy-making may not enable a similar degree of policy accumulation as expected from democracies.

In conclusion, we therefore expect that political responsiveness and associated patterns of policy accumulation are generally much more pronounced for democracies than autocratic systems. Even if the latter rely on elements of democratic legitimation procedures and performance-based legitimation, these features can hardly be considered as sufficient compensation for the dynamics emerging from political competition in democratic systems. Consequently, sectoral policy accumulation in democracies should far exceed corresponding developments in autocracies, where stagnation and low growth of policy stocks is the much more likely scenario.

Research design

To test our expectation of differences in the patterns of policy accumulation between democracies and autocracies, we study the case of Singapore in comparison to developments in 21 advanced OECD democracies with similar levels of income and economic development, focusing on the accumulation of environmental policies during the period between 1976 and 2020.

Case selection

We select the study of environmental policy accumulation in Singapore as a *crucial case* for testing our argument about a “categorical” difference of policy accumulation in autocracies and democracies. More specifically, Singapore can be considered a “least-likely case” in this context, hence providing a hard test to our expectation (Gerring 2007, 2009). If a highly developed and competitive autocracy like Singapore does *not* exhibit the policy growth akin to advanced democracies, we can reasonably expect that our findings should also hold for other less developed and less competitive autocratic systems. This is due to several reasons which should in principle imply that policy accumulation is strongly pronounced in Singapore.

First, as an electoral authoritarian system, Singapore is one of those autocracies that are procedurally rather similar to advanced democratic regimes. Inherited from the British colonial period, the city-state has an electoral regime reminiscent of the Westminster parliamentary system, though changes within the electoral law have entrenched the dominant rule of the People’s Action Party (PAP) since 1959 and introduced group representation districts in the 1980s (Tan 2011; Sun 2015). Opposition parties can attend elections and even gain representation in parliament, however, despite recent opening of the regime, repressive laws like the Sedition Act or use of libel suits remain in-place (Ortmann 2011; Nasir and Turner 2013). These autocratic features still distinguish the Singaporean state from democratic countries and underline its consistently low placement in V-Dem’s democracy reports, as well as the Liberal Democracy Index (LDI) and Electoral Democracy Index (EDI) that provide measurements for liberal and electoral regime characteristics (Lührmann et al. 2020; Alizada et al. 2021).

Second, Singapore is remarkably similar, or even superior, to advanced democracies in terms of a range of socio-economic indicators. It ranks among the countries with the highest GDP per capita and its government effectiveness can also be considered exceptional – outcompeting even the Nordic countries (Kaufmann et al. 2010). The combination of an effective public administration and the focus on economic development in a globalized world economy has long since been a core principle of successive PAP governments (Leong 2000b; Choi 2018).

Third, Singapore’s policy-making activities and expected societal pressures in the analyzed environmental sector are also comparable to the ones faced by democratic regimes around the world, though it follows a trajectory known as authoritarian environmentalism (Goh 2001; Han 2017). Still, the country can be considered an environmental pioneer in its region and in the world, being the second East Asian state – after Japan – to have a dedicated environmental ministry and enacting major environmental legislation by the early and mid-1970s (Chia and Chionh 1987). The early environmental activities in Singapore indicate the importance allocated to environmental policy, especially the sectors of air and water pollution. This poses a further challenge to the theory of responsiveness-driven policy accumulation, making the constructed case more difficult for theory confirmation.

Measurement of policy accumulation

In analyzing policy accumulation in Singapore, we concentrate on the area of environmental policy. This is due to two reasons. First, by focusing on environmental policy, we concentrate on a relatively young and developing policy sector (Adam et al. 2019). This allows us to compare different regime types (here, democracies versus autocracies) over the *same* time period. Second, and as discussed in greater detail below, the Singaporean populace has always shown pronounced preferences for environmental protection (Haerpfer et al. 2022). We can hence assume that the “latent” demand for stronger environmental protection has always been there in Singapore, so that (potential) differences in the level of policy accumulation primarily – and as theorized – stem from how the systems react to the demands of its citizens.

We measure the level of policy accumulation by (changes in) the size of environmental policy portfolios. Policy portfolios essentially consist of two dimensions: policy targets and policy instruments (Adam et al. 2019; Fernández-Marín et al. 2021). Policy targets capture *who or what* governments regulate. In the area of environmental policy, this can be CO₂ emissions from industrial plants, NO_x emissions from cars and trucks, or phosphates in continental surface water. Policy instruments, in turn, are the specific tools and practices used by governments to address the respective targets. Instruments thus refer to the question of *how* governments try to solve the environmental problems they face. The most commonly used instruments in the area of environmental policy are regulations, such as emission or technology standards, market-based instruments such as green taxes or emission trading schemes, and information-based instruments such as labels or certification schemes.

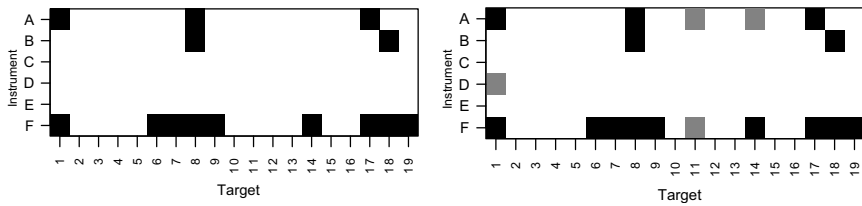


Figure 1. Example policy portfolios.

The distinction between policy targets and policy instruments leaves us with a two-dimensional space. Based on this portfolio space, we can calculate a standardized measure of a country's environmental portfolio size ranging from 0 (no policy instruments applied to any policy target) to 1 (all policy instruments applied to all possible targets). Empirically, we assess the extent of policy accumulation by referring to a predefined benchmark of a maximum number of policy targets and policy instruments. Overall, we identified 50 policy targets most commonly addressed across the three policy subfields encompassing environmental policy: clean air, water conservation, and nature conservation policies. In the Singaporean case, these policy areas can be regarded as highly relevant since the city-state has been industrializing since the 1960s and, in this context, had to protect its small water and natural resources. Likewise, as a city-state with high population density, air pollution has always been a major policy issue (Chin 1996). In addition, we distinguish between 12 types of policy instruments (plus one residual category). These instruments cover hierarchical, market- and information-based forms of governmental intervention. The Online Appendix lists all analyzed policy targets and instruments.

Figure 1 illustrates our approach in greater detail by showing two exemplary policy portfolios that consist of 19 policy targets (horizontal dimension) and 6 policy instruments (vertical dimension). The maximum policy portfolio size would thus equal 114 target-instrument combinations (6×19). In the policy portfolio pictured in Fig. 1 on the left, the size is 0.12 (14/114). In the policy portfolio pictured on the right, the portfolio size grew by four target-instrument combinations (gray-shaded areas). The portfolio size is thus 0.16 (18/114). Standardizing actual instrument-target combinations against potential combinations allows us to compare the size of policy portfolios across countries and over time.

The data on environmental policy for Singapore were collected for the period of 1976 to 2020. The data were extracted from Singaporean legislation which are publicly available via Singapore's National Environment Agency, Public Utilities Board, National Parks Board, National Archives, and Singapore Statutes Online – a government-sponsored webpage providing access to past and current legislation. Information on older legislation was taken from secondary literature if necessary. The comparative data on environmental policy accumulation in OECD democracies are based on a large-scale dataset provided by the ACCUPOL project (Knill and Tosun 2012; Fernández-í-Marín 2020; Fernández-í-Marín et al. 2021). The democratic countries covered are Austria, Australia, Belgium, Canada, Denmark,

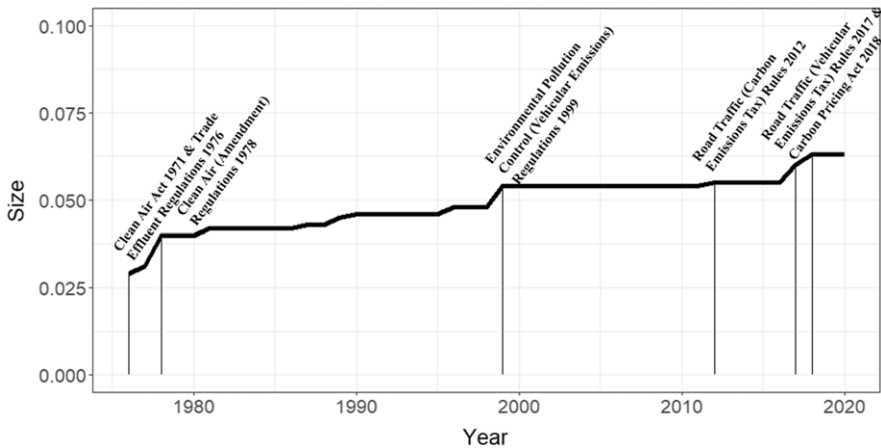


Figure 2. Singapore's policy portfolio development.

Finland, France, Germany, Greece, Ireland, Japan, Portugal, New Zealand, Netherlands, Norway, Spain, Switzerland, Sweden, UK, and USA.

Empirical analysis

In our empirical analysis of patterns of environmental policy accumulation in Singapore, we proceed in two steps. We first describe the policy developments in Singapore. In a second step, we compare and contrast the pattern of policy accumulation in Singapore with the developments in 21 advanced democracies (OECD countries). We included OECD countries with comparable levels of industrial and economic developments and matching income levels (World Bank 2022).

Description

Figure 2 presents the policy developments in Singapore. The figure shows a starting rise in policy growth from the year 1976 to 1978, albeit from a low starting point. Afterward, the 1980s are characterized by an incremental increase, until another bump in 1999. After that, the policy portfolio of Singapore remains largely stagnant for over a decade until another bump in the late 2010s occurred – with the environmental portfolio resting at just over six percent of overall coverage until the end of our observation period.

When looking at the legislation and policies enacted in the 1970s, Singapore starts with some clean air policies already in place – BATs (best available technique) for industrial emissions. The major increase at the beginning of our observation period contains the introduction of obligatory standards for industrial emissions and discharges both for air and water pollution control; in the clean air policy sector, this replaces the BAT provisions and adds information exchanges. Additionally, the first policy on fuel control is introduced in 1977. The focus on air and water pollution control is explained by the rapid industrialization of Singapore, starting in

the 1950s and 1960s. With rapid development, environmental problems arose as well and concerned the PAP government. Reports on environmental pollution in the 1960s and early 1970s prompted Singapore to become an environmental pioneer in East Asia, building up an environmental ministry and Anti-Pollution Unit (predecessor of the environmental agency), and led to the introduction of legislation in policy sectors most heavily afflicted by industrialization and urban development, and most at risk of affecting the populace – clean air and water protection (Chia and Chionh 1987; Tortajada and Joshi 2014). This also follows well in line with other concurrent policy developments in urban housing and transport (Leong 2000b; Wu and Ramesh 2014).

Following this punctuated policy growth in the 1970s that mainly resulted from the need to tackle immediate pollution problems associated with economic development and industrialization, Singapore from the 1980s until the 1990s experienced only incremental environmental policy growth. Further regulations on fuel quality regarding lead and sulfur content were introduced over the decade, improving public health and air pollution control policy set up in the major increases of the 1970s. Toward the end of the 1980s and the beginning of the 1990s, the country had started to grow out of the phase of an industrializing development state. At the same time, a generational change also took place, introducing a different leadership style (Leong 2000b). Both in government and among the small civil society, conservationist sentiments grew for both historical and natural landmarks; citizens were especially concerned about the small green areas that remained in the city-state (Ooi 1992, 1994, 2002; Neo 2007; Han 2017). In line with the concept of a garden city, Singapore co-opted both the small civil society of nature conservation groups as well as the rising global debate about environmentalism, leading to the introduction of a slew of nature conservation policies, like the import and export of flora and fauna as well as the protection of forest and mangrove areas.

Afterward, the policy portfolio witnessed another change from the incremental approach and another larger bump in 1999. This came with the introduction of further measures on air pollution control with the legislating of vehicular emission limits and the effective ban of leaded petrol. In this context, it must be noted that the introduction of vehicular emission limits follows strongly the direction taken previously by other countries like the EU and Japan. Looking at the legislation reveals that the vehicle emissions are often just essentially “copied” over from, e.g., established EC/EU legislation (Crippa et al. 2016).

Following a long interval of stagnation, the rising problem of climate change triggered further changes in Singapore’s policy portfolio. Starting in 2012, Singapore introduced vehicular taxation for carbon dioxide as a “test” climate policy. This taxation policy was extended in 2017 to include all greenhouse gas emissions from vehicles. This was followed by the introduction of carbon taxation into the industrial sector in 2018, with the Carbon Pricing Act. Though less directly than in the case of the emissions standards, it can be noted that by adopting carbon pricing measures Singapore’s legislation followed – once again – trends of international policy diffusion and transfer (Steinebach et al. 2021).

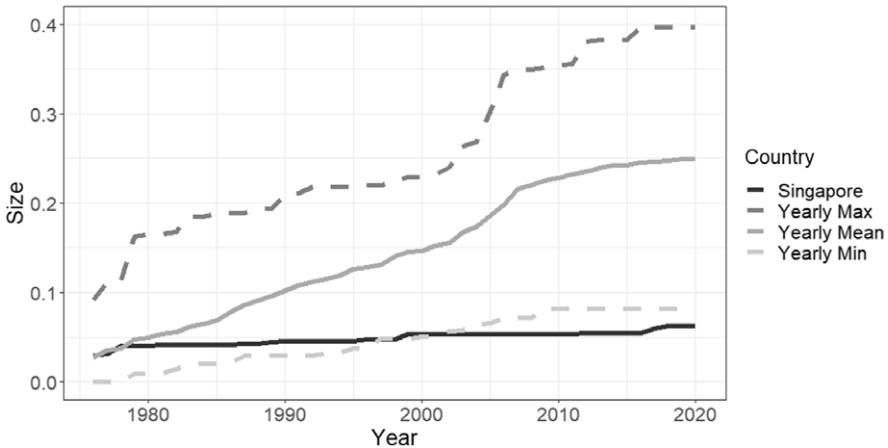


Figure 3. Singapore's policy portfolio development in comparison.

Note: The data on the policy portfolios in 21 OECD countries are taken from the ACCUPOL dataset.

Comparing Singapore to advanced democracies

As discussed in the previous sections, we expect the level of policy accumulation to be more pronounced in democratic than in autocratic regimes. Figure 3 plots the policy growth patterns for Singapore compared to the minimum, maximum, and mean values of our sample of 21 advanced OECD democracies (Figure A1 in the Annex provides a separate illustration for all 21 OECD countries).

When comparing Singapore to the broader sample of countries, one can see that Singapore experiences the lowest level of policy accumulation over the majority of the investigation period. Initially, Singapore even grew slightly stronger than the “average” democracy in our sample. As an early environmental pioneer, Singapore's government had already enacted air pollution policies by the early 1970s and furthered its portfolio in the mid and late 1970s with more stringent emission limits on water discharges and air pollutants (Chia and Chionh 1987). Quickly, however, the majority of democratic countries caught up and overtook Singapore in the number of policies enacted in the environmental sector. In Singapore, environmental policy remained firmly under the governmental paradigm of economic development and nation-building, with environmentalism from “below” at best being co-opted rather than involved in a participatory manner akin to Western democracies (Ortmann 2012). At the end of the investigation period, the “average” environmental policy portfolio size was 0.24 (24 percentage coverage of the maximum portfolio size). Singapore's environmental policy portfolio, by contrast, has not exceeded a size of 0.063 (6.3 percentage coverage). In essence, this implies that Singapore has only just produced slightly more than *one-fourth* of the policy measures of an “average” democracy.

This low level of policy accumulation is even more striking when we directly compare it to countries with a similar level of economic development. Existing scholarly contributions suggest that environmental protection is an immediate result of a county's economic well-being (Torrás and Boyce 1998). The better the

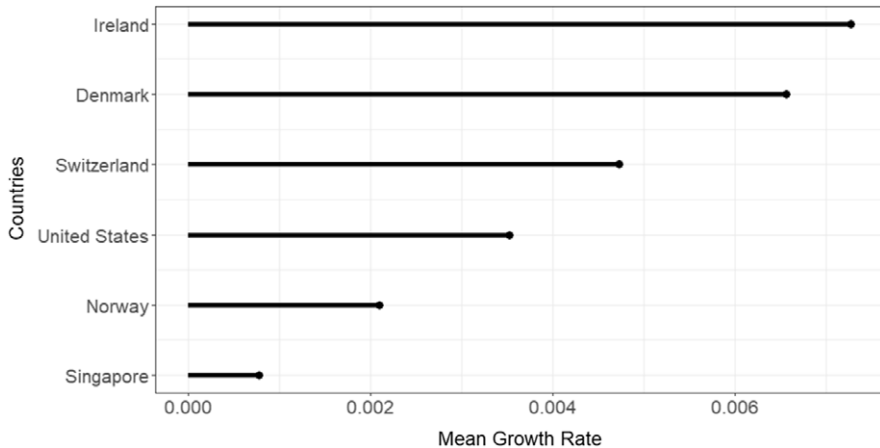


Figure 4. Policy portfolio development in high GDP pc countries.

Note: The data on the policy portfolios in 21 OECD countries are taken from the ACCUPOL dataset. The data on the economic development come from the World Bank (2022).

economic situation, the greater the citizens' demand to devote resources to protecting the environment and mitigating the harmful effects of pollution (von Stein 2022). In the year 2020, Singapore had a GDP per capita of 59,798 USA Dollars. In our sample, only Denmark (61,063 USA Dollars), the USA (63,593 USA Dollars), Norway (67,330 USA Dollars), Ireland (85,268 USA Dollars), and Switzerland (87,097 USA Dollars) have reached a comparable level of economic prosperity (World Bank 2022). Figure 4 thus compares the level of policy accumulation in these five countries with the patterns in Singapore by plotting the average annual growth rate in portfolio size. The figure reveals that Singapore ranks at the very bottom. Norway – the country with the second-lowest annual growth rate – still has a growth rate over two and half times larger than the one of Singapore. In the case of Ireland, the average annual growth rate is even just over nine times greater than the one of Singapore.

In line with our theoretical expectations, Singapore has thus produced significantly fewer environmental policy measures than advanced democracies in the same period. This insight is remarkable given that Singapore displays some elements of political competition and a level of socio-economic development that is comparable to advanced democracies. In consequence, the observed differences, i.e., low levels of policy accumulation, should be even more pronounced in the case of other autocratic countries.

Yet, a crucial question is whether the varying regime types are the only possible explanation for the substantial differences in the levels of policy accumulation. For instance, it is well possible that countries simply differ due to regional development patterns and approaches toward environmental policy-making. To address this concern, Fig. 5 directly contrasts South Korea and Singapore's policy accumulation over time. For South Korea, unfortunately data are only available until the year 2005 in the ACCUPOL dataset (which is also why it is not included in the above analyses). South Korea, similar to Singapore, has been under an authoritarian

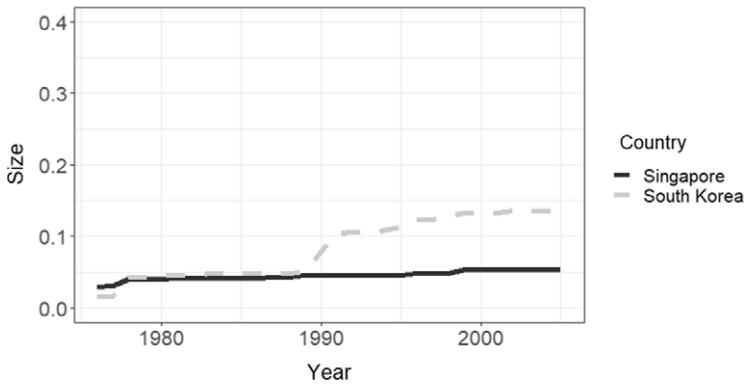


Figure 5. Policy growth in South Korea and Singapore (1976 to 2005).

Note: The data are taken from the ACCUPOP dataset.

developmentalist regime for much of its history since the 1960s, which focused on economic growth, industrialization and urbanization (Kim and Vogel 2011). It has been noted that authoritarian legacies still linger in South Korean environmental policy-making (Lim and Tang 2002). Yet, South Korea's policy outputs have strongly increased after the democratic turnover in the country. In only two years after democratization in 1988, South Korea's policy portfolio more than doubled in size. This indicates that the low comparable growth in Singapore is – as we argue – due to the regime characteristics rather than caused by regional differences. In Figure A2 in the online appendix, we contrast South Korea with other countries from the Oceanic region. Again, Singapore is the country with the lowest level of policy accumulation.

Another alternative explanation could be that Singapore's bureaucracy is highly effective in the implementation of public policies so that the government requires overall fewer policies to achieve its targets. In fact, with a value of 2.34, Singapore was the country in the sample with the highest level of government effectiveness in the year 2020 (Kaufmann et al. 2010). Within our sample, only Switzerland (2.02) and the Nordic countries Finland (1.95), Norway (1.94), and Denmark (1.89) are near these levels of government effectiveness. Figure 6 plots the average annual growth rate for the subsample of highly effective countries. It shows that government effectiveness can actually *not* serve as a valid and single alternative explanation given that also the other countries with high levels of government effectiveness have produced substantially more environmental policies than Singapore.

Moreover, one could argue that the autocratic character of the Singapore government allows the policy-makers to opt for stricter policies while democratic governments must produce more (but softer) policies to achieve the same outcome. In this case, the observed differences would *not* be – as we argue – due to different levels of policy responsiveness but due to an inability of democratic governments to come up with more ambitious policies. To address this concern, we take a closer look at the ambitiousness (exact calibration) of the policy instruments used. Policy instruments that allow for direct and easy comparison are carbon pricing policies.

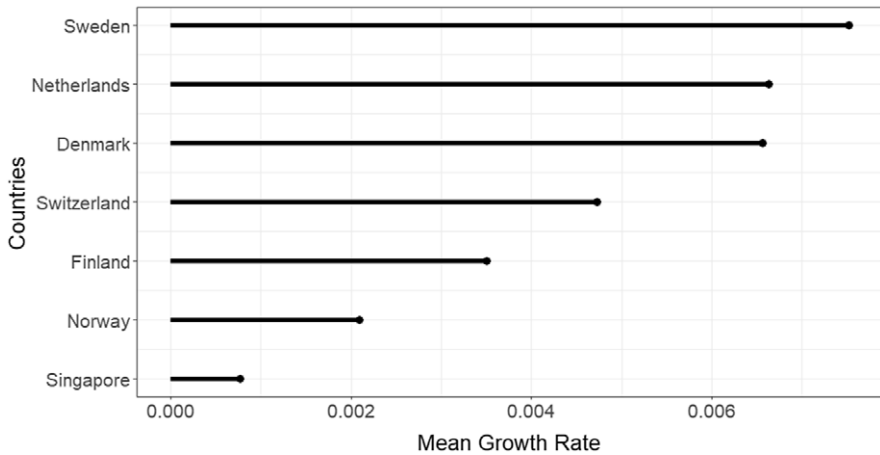


Figure 6. Policy portfolio development in countries with highly effective administrations. Note: The data on the policy portfolios in 21 OECD countries are taken from the ACCUPOL dataset. The data on the government’s effectiveness are taken from the worldwide governance indicators (Kaufmann et al. 2010).

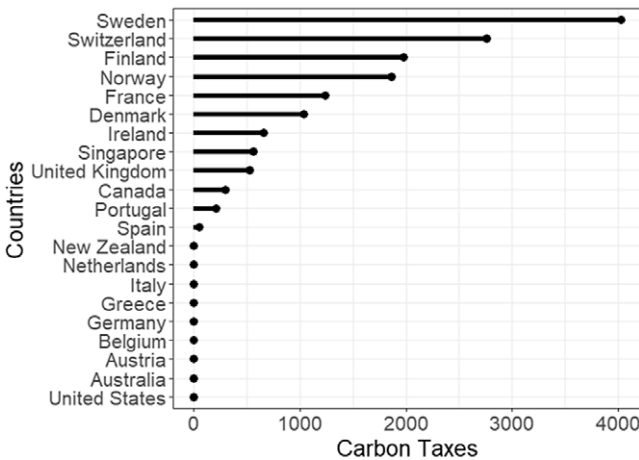


Figure 7. Policy ambitiousness of carbon taxes in comparison. Note: The data on the policy ambitiousness of carbon taxes are taken from Steinebach, et al. (2021).

According to Steinebach et al. (2021), the ambitions of carbon pricing schemes can be simply compared across countries when multiplying (1) the price of a ton of CO₂ with (2) the percentage of national greenhouse gas emissions covered. Figure 7 plots the ambitiousness of carbon taxes for our country sample. The values are taken from Steinebach et al. (2021) for the year 2019. The figure highlights that Singapore is located in the upper mid-field but does *not* outperform the other countries when it comes to policy ambitiousness. In other words, Singapore does *not* “compensate” for the low level of policy accumulation with more ambitious policies.

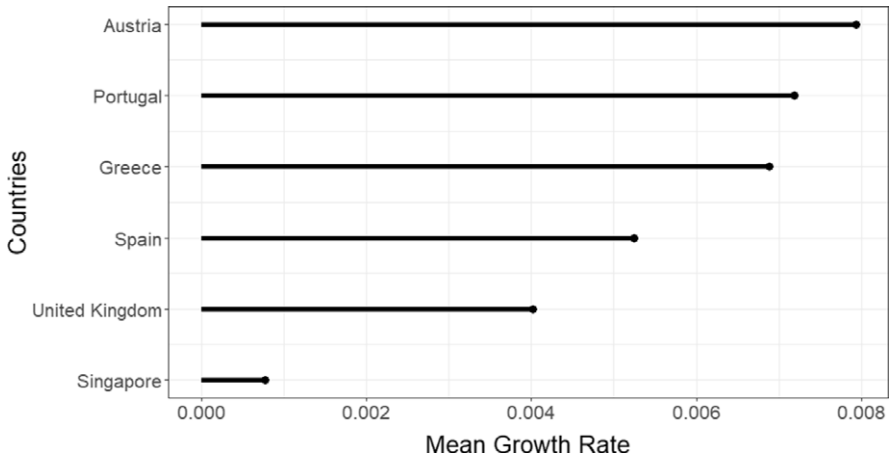


Figure 8. Policy portfolio development – Countries with similar environmental awareness.

Note: The data on the policy portfolios in 21 OECD countries are taken from the ACCUPOL dataset. The data on the population levels of environmental concern are taken from the World Values Survey (Haerpfer et al. 2022).

Finally, the lower amount of policy output could still be considered as sufficiently responsive, if environmental awareness among Singapore's populace were rather low. This would suggest that the low level of policy output is the result of a *lack* of demand from the populace, and hence does not indicate a lack of responsiveness. In order to address this concern, we can look at the degree of environmental concern in Singapore. Here, we turn to the World Values Survey (Haerpfer et al. 2022). Having to decide between giving priority to environmental protection or to economic growth, Singaporean respondents came out with 55.8 percent in favor of the environment – with only 36 percent giving primacy to the economy. This is quite remarkable given the fact that economic developmentalism is a core feature of Singapore and is also present in matters of environmental policy (Sam 2011; Choi 2018). Compared to sample countries in Fig. 8 (Spain: 57.5 percent; UK: 57.3 percent; Portugal: 57.1 percent; Austria: 53.5 percent; Greece: 52 percent; USA: 50.4 percent) with the nearest degrees of environmental preference, Singapore experiences a significantly lower level of growth. In fact, the nearest country – the UK – grows five times as much as Singapore. Austria even grows nearly ten times as much. This indicates that despite similar levels of environmental concern, the autocratic regime does not translate these environmental concerns into policy output as readily as their democratic counterparts. Furthermore, this falls well together with the notion of the Singaporean government prioritizing economic concerns over environmental matters.

Conclusion

In this article, we followed the basic premise of responsiveness-driven policy accumulation that modern democracies should produce more policies and exhibit more policy growth than autocracies. This has structural reasons. Modern

democracies follow the dynamics of political (party) competition that incentivizes the supply of policies by various political actors and parties and that, furthermore, enables citizenry and interest groups to articulate and effect political demands. Autocratic regimes, by contrast, do not typically provide such incentive structures. Even competitive authoritarianism that relies on performance and democratic procedure as tools for legitimation can only insufficiently compensate for democratic responsiveness. Concerning policy accumulation, we demonstrate this distinction with the case of Singapore – a least-likely case most comparable to the sample of advanced democracies. Contrasting Singapore’s policy portfolio development over more than four decades (1976 to 2020) with the development in 21 democracies, we show that autocratic regimes do indeed tend to accumulate substantially less than democratic regimes. In comparison to the “average” democracy, Singapore only exhibits about one-fourth of the environmental policy measures and is the country in the sample with the lowest growth rate. The consideration of alternative explanations such as the countries’ bureaucratic effectiveness, the ability to produce stricter regulations or the level of environmental concern within the population does not change this assessment. On the contrary, it is quite remarkable that Singapore exhibits such a low level of policy accumulation relative to its more direct peers. In line with our argument, the lack of political responsiveness in autocratic regimes seems to prevent the accumulation of policies, this way highlighting a structural difference in the policy development of democracies and autocracies.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S0143814X2300017X>

Data availability statement. Replication materials are available in the Journal of Public Policy Dataverse at <https://doi.org/10.7910/DVN/RXMV9W>

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