Nature or nurture? Agency life-cycles as a function of institutional legacy, political environment, and organizational hardwiring

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Abstract

A growing body of literature attempts to explain the life-cycles of public sector organizations. Of particular interest has been the form and incidence of their birth and termination, and connecting these events to such variables as legal status and political ideology. Less attention has been given to the effect of intermediary life-cycle events, the tasks performed by agencies and their policy domains. This study builds on existing fixed characteristics (nature) and dynamic environmental (nurture) approaches, and uniquely supplements them with a new institutional legacy paradigm that examines how previous organizational reforms influence future reform. Moreover, we advance existing studies by providing more comprehensive tests of the role that task type and policy domain play. Finally, we retest 'classic' nature and nurture variables, namely political turnover and legal form. Results suggest nature and nurture provide important pieces of the organizational life-cycle puzzle, and that nurture comprises both external and intra-organizational dynamics.

Keywords

Evidence for Practice

- The probability of organizational reforms in the public sector is influenced by past reforms, providing initial evidence that reform cycles can become self-perpetuating cycles.

- Would-be reformers in an organization should inform themselves of historical reforms, the reasons for them and their subsequent effects before engaging in new reforms with new challenges.

- Further support is found for the argument that political turnover heightens probability of reform, suggesting that public organizations should plan their trajectories such that they can smoothly absorb shocks from post-election changes.

- Legal form, policy field and task also affect reform rates, suggesting that managers can in part assess the risk of (political) intervention over time by looking at their organization's 'dna'.

- Organizational reforms, bonfires, culls and merger programmes create new challenges and organisational legacy effects down the line, which should be taken into account when announcing them

Introduction: The Study of Public Organization Life-cycles

The creation and evolution of public sector organizations is a theme of long-standing interest in public administration. Why governments seek to establish ministries or arm's length 'agencies' and how they design, allocate tasks, manage and coordinate them lies at the heart of the study of bureaucracy (Gulick 1937; Simon 1947; Weber 1947; Downs 1967; Wilson 1989). And once created, the survival of public sector organizations has also animated researchers seeking to explain why some organizations last longer than others (Aldrich 1999; Hager et al. 1996), or even appear 'immortal' (Kaufman 1976; Strange 1998). Recently, survival analyses and other temporal empirical investigations have produced new insights concerning the relevance of environmental factors (specifically various forms of political turnover) as well as some foundational or 'hardwiring' factors for understanding these issues (Kuipers, 2018; Chen et al., 2019; Yesilkagit, 2021; Lim, 2021).

In contrast with the study of organizational creation and survival, organizational termination studies have emerged comparatively recently and in intermittent fashion (Lim 2021). Having originally emerged in the late-1970s with ground-breaking work by Kaufman (1976) concerning public organizations and Bardach (1976), de Leon (1978) and others concerning public policy, and subsequently developed during the 1980s by Hogwood and Peters (1982; 1985) and Kaufman (1985) with an increased focus on event history models, little new theory development occurred during the 1990s. However, interest has re-emerged recently, with studies concerning the frequency of organizational terminations for the US (Boin et al. 2010), Ireland (MacCarthaigh 2014), the UK (James et al. 2015; Greasley and Hanretty 2016) and Korea (Park 2013) as well as more theory-focused work (Lim 2021).

Advanced longitudinal approaches to organizational change in state administrations have become possible through the creation of databases that document organizational changes over time (MacCarthaigh and Roness 2012). Early work on this includes analyses of the number

and types of public organizations in Ireland between 1922-2010 (MacCarthaigh 2012); Norway between 1947-2011 (Rolland & Roness 2012), Estonia from 1990-2010 (Sarapuu 2012), Lithuania from 1990-2010 (Nakrošis and Budraitis 2012) and Hungary from 2002-2009 (Hajnal 2012). Concurrent with these developments has been an increase in focus on the factors that predict agency termination or reform (e.g. Lewis, 2004; Boin et al., 2010). Boin et al. (2010) for instance advanced work on the relationship between formative design decisions and organizational survival by examining New Deal agencies created in the US between 1933-36. They found that 'birth characteristics' (such as whether a government board or commission was created, or a sunset clause) matter, but in different ways as time progressed. Such relatively stable, structural "nature" characteristics thus form one category of potential explanations for agency reform and/or termination. Others have focused instead on the more dynamic and changeable "nurture" factors that shape agency reform or termination, such as political ideology, the presence of minority governments or right-wing incumbencies (Lewis, 2002; Götz et al., 2018; Danielsen & Fleischer, 2023), budgetary pressure and economic variables (e.g. Carpenter & Lewis, 2004). Such nurture factors, whether they stem from the external environment or from internal developments, are another interesting avenue of inquiry as they represent the more rapidly changing factors that public organizations face.

Recently, comparative work examining structural changes in the formal organization of governments challenged some conventional wisdoms about the pace and consequences of bureaucratic change. For example, Yesilkagit et al. (2022) found strong evidence that politicians are interested in issues of institutional design (and ministry names) and the organization of internal structures for ministries they have responsibility for. Indeed there is re-awakened interest in the relationship between political decisions over policy portfolio design and the allocation of competencies between and within ministries (Sieberer et al 2019; Bertels & Schulze-Gabrechten, 2021; Caroll et al., 2020), as well as the effects of this at lower levels

of government organization (Fleischer et al 2022). What is more, attention has gradually shifted from a pure focus on termination to also incorporating the reforms that occur *during* an organizational life-cycle (Yesilkagit, 2022; Kuipers et al., 2018) – an approach we contribute to here.

However, several important gaps remain. Extant contributions viewing agency life-cycles as a (partial) function of nurture factors (i.e. developments that the agency experiences over time) have primarily focused on the impact of external variables such as political and economic environment (Kuipers et al., 2018). Although providing important insights, approaches focusing purely on the external environment could miss how dynamics internal to an organization may shape it over time, i.e. its internal institutional legacy (Brunsson, 2006). Moreover, although our insight on the role of some factors in an organization's 'nature' – such as task and legal form - is advancing, a variety of policy fields and task types have yet to be explored. To incorporate this dual focus in a relatively comprehensive study of both nature and nurture factors, we pose a broad research question: what factors explain the probability of public sector organisations being reformed, i.e. subject to a major transition in their legal form, task, policy domain or structure?

On the nature side, specific gaps remain in examining task types beyond regulatory and advisory tasks. This means that tasks such as direct service provision or adjudication remain relatively unexplored, even though organizations with such tasks may be faced with greater turbulence due to their salience to citizens or reduced turbulence due to credible commitment requirements. Moreover, the role of policy field remains relatively unexplored, with only a few contributions providing partial tests of a small number of policy field (Yesilkagit, 2021; Chen et al., 2019). On the nurture side, we advance insights in the nurture domain by looking not just at the well-established influence of the external political environment (Kuipers et al., 2018), but by also considering how prior reforms affect future reforms – adopting what we call an internal

'institutional legacy' approach. These institutional legacy insights in particular are also highly relevant for practitioners, as they allow us to evaluate how reform programs affect organizations years into the future.

Another methodological contribution to both the temporal public administration and agency life-cycle literatures is our analysis of recurrent event data. Specifically, we analyze whether reform begets reform by using conditional risk set analysis, a form of survival analysis that has not been used previously in public administration. Such analyses not only correct for the fact that organizations may encounter multiple major transitions over time (Kelly & Lim, 2000), but also allows us to explore the causal impact of previous reform events on future reform events. By acknowledging that many events in the agency life-cycle are likely not independent and may even be causally connected, we open new pathways for temporal analysis in public administration. We do so by drawing on 634 organizations from a dataset – the Irish State Administration Database (ISAD; www.isad.ie) – which captures the development of Irish public administration at the national level over the last 100 years.

The remainder of the article is structured as follows. First, we introduce the theoretical framework, elaborating both on nature and nurture factors incorporated in our analysis. Subsequently, we introduce the ISAD and the conditional risk set analyses performed on ISAD data. We then present results followed by a discussion, before concluding.

The Relevance of Nurture: Internal and Environmental factors

An internal institutional legacy perspective: reform begets reform?

Until recently, the public sector life-cycle literature has tacitly assumed that terminations and transitions are independent events, which are determined either through fixed 'nature' characteristics (e.g. the organization's legal characteristics) or through environmental 'nurture'

factors (e.g. top-down changes from the political level or the entity's media salience and reputation) (Lim, 2021). Building on Brunsson (2006) and Lim (2021), we posit that this may overlook a second, internal nurture dimension. Specifically, we argue that structural reforms are not independent, and that reforms in the organization's past potentially increase the likelihood that another event will occur in the future. This argument fits closely with the institutional legacy approach to studying transitions and terminations, which emphasizes how factors in the organization's past affect future hazard (Kuipers et al., 2018).

Brunsson (2006) notes that reforms are often introduced as part of routines, and that – despite high expectations at their outset – they are frequently ineffective at fundamentally addressing an organization's problems. Moreover, even when they do solve some problems, they are likely to generate others. He offers the example of an organization that perceives the need to decentralize, only to discover the benefits of centralization in the process. Other work in organizational psychology and, more recently, public administration, supports the assertion that reforms produce a variety of (inadvertent) problems. It has for instance been found that reforms produce adverse organizational effects such as reduced innovation (Wynen et al., 2017), as well as adverse effects among employees such as increased uncertainty, intent to quit and negative workplace behaviors (Oreg et al., 2011; Kleizen et al., 2023; De Vries & De Vries, 2023).

The problems and shortcomings introduced by prior reforms may provide fuel for the development and introduction of future reforms, as Christensen et al. (2007) point to in respect of the New Public Management-inspired reforms. A merger is for instance frequently an event which produces a new organization with 'teething issues', requiring additional adjustments in the organization's structure several years later. Departments that do not fit within the new structure may be seceded, or the organization may require a major internal transition to address inefficiencies in the joint structure or to adapt to its widened mandate.

Moreover, the organization or its political superiors may detect that some of the problems that should have been solved by the previous reform remain, again stimulating the development of new reforms (Pollitt, 2007; Brunsson, 2006; Glatter, 2017). Pollitt (2007) observed that despite decades of NHS reform in Great Britain, many of the original problems persisted. Nonetheless, tackling these unsolvable problems by imposing further reform remains a salient political theme, thereby increasing the probability of the introduction of new reforms. Additionally, Brunsson (2006) argues that new reforms may be introduced to advance a direction taken by previous reforms, for instance by re-emphasizing the same values or reinforcing previously introduced structures with additional solutions. The end result may be an entity that is reformed several times in succession (e.g. Pollitt, 2007; Wynen et al., 2017),.

In terms of survival analysis, this introduces the expectation that having experienced a reform increases the hazard (i.e. the chance of an event of interest occurring at any given time) of experiencing another reform. As not all reforms are created equally, we expect more intensive reform programs (such as mergers or splits) to increase hazard more than moderately intensive reforms (such as changes of legal form) which usually produce less problems in terms of organizational structures, functioning and employee outcomes. We therefore formulate the following hypothesis:

> *H1: Organizations experiencing one reform have a heightened probability of being reformed again*

An external perspective: political processes

In the previous subsection we discussed an approach focusing on internal reforms as an explanatory factor for future reforms. Previous studies show, however, that nurture factors in the external environment may also play a major role in predicting how structural changes appear

over time in public organizations (Kuipers et al., 2018; Lewis, 2002; Boin et al., 2010). Specifically, political turnover has consistently been found to have a negative effect on survival rates in the termination literature (Lewis, 2002), and a similar effect may be relevant for the broader study of organizational reforms (i.e. including both lifetime reforms and termination events). Turnover brings in a new set of political actors with new electoral promises, and sometimes an interest in undoing the policies and institutional architecture developed by their forebears. Organizations may therefore be more likely to be redesigned to fit the policy priorities of new governments.

Of course, when political parties enter office they also bring their ideologies. Whereas left-leaning governments may be inclined to maintain larger governments with greater capacity, it has previously been argued that right-wing conservative governments seem to be more inclined to terminate agencies, leading to higher hazard when the latter is in power. Right-wing governments are frequently elected on mandates of reducing red-tape, governmental interference and creating 'smaller' bureaucracies (Götz et al., 2018; Carpenter & Lewis, 2004). Terminating organizations fits within the idea of introducing cutbacks (Götz et al., 2018). A similar effect may be relevant for reforms occurring during an entity's lifetime, allowing right-wing parties to claim that something is being done about inflated bureaucracies.

In the context of the Irish system, two notes are important. First, it is a system focused strongly on the authority of the political executive (MacCarthaigh 2005), implying that measuring which party is in power is likely the dominant factor in explaining organizations' hazard to be reformed. Second, the Irish state has been dominated by two political parties over the last century: Fianna Fáil and Fine Gael. Although both parties are considered centre-right in comparative European terms, Fianna Fáil is slightly more centrist, supportive of welfare and traditionally associated with patronage of governmental organizations, potentially leading to reduced hazard when it is in power. Conversely, Fine Gael is normally associated with

conservatism, market liberalism and reducing governmental interference, possibly increasing hazards for governmental organizations.

The aforementioned considerations on political turnover and the relevance of ideology lead to two hypotheses:

> *H2: When the dominant party in government displays greater ideological tendencies towards conservative-liberalism, organizations have a higher likelihood of experiencing reform*

> *H3: During periods in which political turnover takes place (in terms of the other dominant party entering into office) the likelihood that organizations are reformed is increased.*

The Relevance of Nature: Legal form, Task and Policy Field

The previous section devoted attention to several dynamic factors that may affect reform rates during an organization's life-cycle. A second paradigm exists which focuses instead on (relatively) static factors ingrained in an organization's DNA (Kuipers et al., 2018), such as its legal insulation, policy field and organizational task. In essence, the argument is that possessing some birth characteristics will on average allow an organization to survive without encountering reform for a longer time than when possessing other characteristics. Hence, this paradigm argues that temporal developments in reform activity are predicated – in part – on how an organization was originally designed. We retest the relevance of legal insulation by examining the impact of legal forms, while also adding novel evidence on the relevance of organizational task and policy field – two hardwiring factors which have received some attention in the literature but have not been fully explored.

Insulation through legal form

Perhaps the most well-studied variable regarding organizational birth characteristics is legal insulation (Kuipers et al., 2018). Scholars have long argued that various forms of insulation, including legal form, being founded on statutory law and possessing legal personality is a predictor of when an organization perishes. Legal insulation influences how difficult altering and abolishing an organization will be, and may prevent governments – or the organization itself – from doing so. It has been argued that legal insulation is not only relevant from a credible commitment perspective (i.e. making the entity legally independent to prevent political interference), but may also serve to protect an organization from future hostile governments by ensuring that reforming or terminating them involves heavy transaction costs (Moe 1995). As such, improving the entity's legal insulation may serve to reinforce a government's legacy after future elections (Lewis, 2004; Boin et al., 2010).

The Irish state – as a common law system – has a slightly different tradition to insulating agencies than continental systems. Some organizations – both within and outside departments - are based on no statute at all, giving them relatively little insulation (e.g. non-statutory non-departmental bodies) and therefore – if theory holds – larger probabilities of experiencing reform. Conversely, entities such as statutory corporations or statutory non-departmental bodies offer the benefit of insulation through statutory underpinnings and arm's-length distance from the core executive, which should reduce the probability of reform. Other public organizations are granted private legal forms such as the private limited company. This is in addition to several organization types existing in the grey zone between the public and private spheres (which were taken into account when under public sector control), such as transit companies or professional regulatory bodies. Possessing a private legal form may on the one hand subject entities to different survival processes (as they are now also subject to company law), but may also put

the body at arm's length from the entity's political superior, thus protecting it from politically imposed reform.

By integrating all these legal forms into our analyses, we can test several expectations simultaneously: the relevance of statutory basis, the impact of being decentralized within or outside a department, and the relevance of receiving a private legal form. Therefore, we formulate the following hypothesis;

> *H4: Organizations with greater legal insulation (through being a statutory body, being externally decentralized or having a private legal form) have a reduced probability of being reformed*

Task and policy field

Beyond legal form, the task and policy field of an entity may also determine the degree to which it is politically salient and the degree to which it is subject to turbulence from its environment.

The relevance of a limited number of task types has been explored in prior contributions. It has been argued that advisory bodies are sometimes only temporarily needed for various functions and may even be set up with sunset clauses (O'Leary, 2015; Kuipers et al., 2018), thereby increasing their chance of experiencing a reform or termination. Other studies have pointed to the insulating role that a regulatory task may play, as these entities are often set up with some degree of informal or formal arm's length distance (James et al. 2015). Such distance shields them from political interference, and thus functions as a form of credible commitment. Thus, for these task types, we would respectively expect to see heightened and reduced hazard ratios.

Beyond regulatory and advisory tasks, the relevance of other task types have not yet been explored. Nonetheless, we may expect that tasks such as contracting & transfer (incorporating

direct financial interactions with citizens or companies) and delivery (direct service provision to citizens) make entities relatively salient for their stakeholders, increasing their propensity for externally imposed change. Conversely, performing adjudicatory tasks (such as mediation or judicial functions) should be similar to performing regulatory tasks, in that adjudicatory entities are often set up at arm's length distance to shield them from political interference.

Therefore, we expect that advisory, delivery and contracting & transfer tasks are likely to increase an entity's hazard ratios. Conversely, adjudicatory and regulatory tasks should reduce hazard ratios. To maintain succinctness, we summarize these considerations on various tasks in a non-directional hypothesis, while keeping underlying expectations in mind:

H5: Task influences the probability of reform for organizations

Policy field may influence the propensity of an organization to be reformed in a similar way. Some policy fields, such as 'health', 'social security & employment', 'education, training and science' and 'economic affairs' may be particularly salient for citizens and politicians, leading to a stronger political motivation to intervene – and in turn may lead to an entity in these policy fields being reformed (on average) sooner than entities in other policy fields. Indeed, scholars in health management and educational sciences have noted that their areas are characterized by a particularly strong political drive to reform governance systems and organizations (Hunter, 2011; Glatter, 2017), while public administration scholars in the UK have previously observed extremely high rates of reform in the UK National Health Service (NHS) (Pollitt, 2007). We would therefore expect to see heightened hazard ratios in politically salient socio-economic policy fields such as social affairs, health, education and economic affairs. Conversely, entities in comparatively less salient policy areas , such as 'recreation, culture and religion' and 'general

public services' may find themselves on the 'low politics' end of the scale, where the electoral gain from imposing reforms on organizations may on average be more limited.

Although sector-specific studies offer some corroboration that policy field matters, little cross-sectoral evidence is available. One exception is Yesilkagit (2021), who finds that entities in social and economic policy areas have a heightened risk of experiencing transitions as compared to all other policy areas, consistent with the idea that political salience drives reform rates (Mele & Ongaro, 2014). Another exception is Chen et al., (2019), who find an interaction effect between political salience and the policy field economic affairs, such that political salience was less impactful for economic affairs entities. Building on the sparse insights available, the current contribution provides a more integral test of the policy field variable, examining all policy fields available in the Irish public sector. As knowledge on cross-sectoral differences remains limited, we keep the hypothesis at a general level, and explore in the results section which policy fields (if any) seem particularly prone to reform:

H6: Policy field influences the probability of reform for organizations

Data and Methodology

Data sources

To understand the importance of nature and nurture in explaining at what time in their life-cycles organizations are reformed, we draw on almost 100 years of Irish data on organizational transitions captured in the ISAD. The ISAD is a dynamic database that captures all public organizations that have existed from the inception of the Irish Free State in 1922 to the present, including Ministerial departments, arms-length bodies or agencies, and a variety of commercial and non-commercial organizations with delegated authority and responsibility. The database

adopts a variety of classifications to determine the 'publicness' of these organizations, including their legal status, policy domain and task (see Hardiman and Scott 2012).

The life-cycle of each organization has also been coded to account for its creation, organizational transitions (reforms) during its existence, and its mode of demise or termination. These transitions include absorptions, secessions, legal form changes and transfers of tasks from and to other entities, as well as replacements in which the entity undergoes a reform (an event which substantially changes the entity's internal makeup, including aspects such as its name, internal makeup and/or core tasks). Moreover, entities may encounter death events, in which they are terminated, merged with other entities, or split across other entities. Entities may additionally enter or leave the database through transfers to and from the private sector (an entity is no longer controlled by the state) or sub-national levels. The benefit of this approach is that we can construct timelines that incorporate multiple reforms (also allowing us to test the reform-begets-reform hypothesis). Admittedly, there is also a downside that is unfortunately difficult to overcome: by coding mergers and splits as a death we introduce a split in organizational timelines, while in reality parts of the organization live on in other organizations. For the variable incorporating as an independent, this can be partially overcome by coding the founding event (e.g. founding by merger of founding by split) as a reform, while not counting births without a predecessor as a reform (see discussion of independent variables below).

Although the ISAD captures some entities that pre-date independence in 1922, we focus our analysis specifically on entities existing post-independence. A common date on which Irish independence is fixed is 6 December 1922, when the constitution of the Irish Free State came into force. As end date, we select 31 December 2021, effectively providing just over 99 years of data. With the entities covered by the ISAD spanning the entire Irish central government, our

analysis includes 634 organizations[1]. As will be discussed in more depth in the analysis section, some of these entities have repeated observations, i.e. more than one reform, death or censoring entry relevant for the purposes of survival analysis. Accordingly, we have access to 828 observations divided over 634 organizational clusters.

The Irish State is an interesting case to examine for several theoretical and pragmatic reasons. First, it is a West European common law country, which makes it a useful context to re-analyze previous findings on variables such as legal form. Second, as Ireland possesses a governmental form in which the political executive is traditionally quite dominant compared with previously studied contexts in which executive turnover was equally important, examining how political turnover impacts agency reform in the Irish public sector adds to our knowledge on the impact of factors emerging from an entity's political environment. Third, the Irish economic boom from the mid-1990s coincided with a rapid expansion in the agency population, but also NPM-style reform efforts. Finally, a pragmatic reason is the availability of the ISAD, one of the most expansive databases on agency reforms currently established.

Although the ISAD provides the necessary data source for variables on reforms and hardwiring, it lacks data on political and economic processes in the organization's environment. Therefore, additional variables were coded on lead political party during the time of a reform event, whether a change in lead party had recently occurred and whether the event took place during a noteworthy political or economic time period (see below).

Independent variables

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[1] We do not include Ministerial departments in our analysis given their distinctive legal form which ensures that they do not suffer demise in the same way other national organisations do (e.g. as they are frequently reshuffled post-election), as well as their multi-functional nature which makes classification problematic.

We explain the hazard (probability of being reformed) of organizations in the ISAD on the basis of a number of variables, which can be subdivided into nature variables (birth characteristics) and nurture variables (internal or environmental processes occurring throughout the organization's life-cycle).

Nurture: the organization's life-cycle

Starting with the variables that describe developments during an entity's lifetime, we include previous reform, political turnover, incumbent political party and time period.

In the first indicator for the impact of previous reforms, we use a simple dummy capturing whether an entity has been reformed before. The second indicator is based on work in a related literature line, which attempts to measure the inadvertent psychosocial side-effects of reforms (Oreg et al., 2021; Wynen et al., 2017). It attempts to correct for the expected impact of a reform, weighing a compositional change such as a merger as more impactful than a transfer of tasks or a legal change (Wynen et al., 2017). Prior events which were 'simple' births (i.e. a lack of prior reforms other than birth) are coded as 0. We then code replacements, transfers across governmental levels, transfers from the private to the public sector and legal form changes as changes with a value of 1, while absorptions, secessions, mergers and splits are coded with a higher value of 2. The reforms with a value of 2 therefore reflect changes in terms of employee re-shuffling, task types and task scope. Such changes are likely to be particularly impactful for the organization and, in line with Brunsson (2006), may be likely to generate a larger amount of problems that have to be resolved in future reforms.

We incorporate a number of variables to capture the political environment (hypotheses 2 and 3). First, we incorporate whether Fianna Fáil or Fine Gael is in power at the time of a measured event. Additionally, we capture when power transitions from one of the two dominant political

parties to the other party. We focus on lead party to reflect that political power in Ireland is primarily focused on the executive, making changes in the largest party in power the most impactful political turnover event. Two versions of this variable are tested, one in which a reform takes place during a period in which coalition lead change takes place, and the other whether coalition lead changes took place in the previous 365 days. The first version of the variable thus allows for longer timeframes for a reform to take place than the second.

Finally, as hazard may also be impacted by the time period in which a reform event takes place, we account for a number of remarkable periods in the economic and political development of Ireland. First, we account for the economic downturn in the 1980s during which the Irish government was required to substantially reduce debt. Second, we account for the post-1990 Celtic Tiger period, during which Ireland experienced remarkable GDP growth. Finally, we account for the 2008 financial crisis, which introduced substantial austerity, political turmoil and state retrenchment.

Nature: variables on an organization's hardwiring

We examine the impact of 'nature', i.e. birth and design characteristics, by comprehensively testing the variables legal form, policy field and task simultaneously. All are incorporated as factor variables. Legal form includes the categories 1) statutory corporation, 2) statutory non-departmental body, 3) non-statutory non-departmental body, 4) company limited by guarantee, 5) executive agency, 6) private limited company, 7) public limited company, and 8) chartered corporations. Furthermore, an 'other' category is created for government offices, constitutional offices, statutory office holders & tribunals, as these categories were too small to include separately. We also incorporate the ISAD's coding of policy fields, which is based on the UN COFOG scheme but is expanded to provide more fine-grained categories. Finally, we

incorporate ISAD codings of primary task. An overview of these codes can be found in Appendix 1. Descriptive statistics are offered in Table 1.

VARIABLE	Obs.	Mean	Std. Dev.	Min.	Max
IMPACT PREVIOUS REFORM (2) (1922-2021)	830	0,461	0,714	0	2
IMPACT PREVIOUS REFORM (2) (1995-2021)	615	0.511	0.742	0	2

DUMMY VARIABLES AND FACTOR VARIABLES

VARIABLE	Percentages 1922-2021 (830 obs.)	Percentages 1995-2021 (615 obs.)
IMPACT PREVIOUS REFORM (1)	33,13%	36,10%
PARTY IN POWER (1= FIANNA FÁIL)	78,32%	82.76%
CHANGE IN PARTY IN POWER (GOVERNMENT PERIOD)	80,12%	87,97%
CHANGE IN PARTY IN POWER (365 DAYS)	10,84%	7.32%
LEFTCENSORED	6,61%	48,94%
POLICY FIELD		
HEALTH	13,61%	14,31%
TRANSPORT	4,94%	4,07%
AGRICULTURE & ENVIRONMENT	9,88%	6,67%
PUBLIC ORDER & SAFETY	10,36%	11,87%
OTHER	14,38%	15.77%
EDUCATION, TRAINING & SCIENCE	12,05%	12,36%
SOCIAL PROTECTION & EMPLOYMENT	7,23%	8,13%
ENTERPRISE & ECONOMIC DEVELOPMENT	15,90%	13,82%
HOUSING & COMMUNITY AMENITIES	2,89%	3,09%
RECREATION, CULTURE & RELIGION	8,80%	9,92%
ORGANIZATIONAL TASK		
ADJUDICATION	8,67%	10,24%
ADVISORY	23,86%	21,63%
CONTRACTING & TRADING	7,59%	5,53%
TRANSFER	5,42%	5,04%
DELIVERY	33,49%	33,98%
REGULATORY	19,28%	21,63%
OTHER	1,93%	1,95%
LEGAL FORM		
STATUTORY NON-DEPARTMENTAL BODY	18,19%	16,26%
STATUTORY CORPORATION	35,78%	40,16%
NON-STATUTORY NON-DEPARTMENTAL BODY	13,86%	12,03%
EXECUTIVE AGENCY (WITHOUT INDEPENDENT LEGAL PERSONALITY)	5,18%	6,18%
COMPANY LIMITED BY GUARANTEE	6,39%	6,67%
CONSTITUTIONAL, OFFICE HOLDERS, TRIBUNALS	6,75%	7,32%
PUBLIC LIMITED COMPANY	3,25%	3,90%
CHARTERED CORPORATION	2,17%	2,28%

PRIVATE LIMITED COMPANY	8,43%	5,20%
TIME PERIOD (OTHER IS REFERENCE CATEGORY		
PERIODS=DOWNTURN **1980-1987**	5,06%	n.a.
PERIODS=CELTIC TIGER PERIOD **1995-2008**	15,42%	n.a.
PERIODS=DOWNTURN **2008-2015**	13,61%	18,37%
OTHER	65,90%	

Table 1: descriptive statistics for the 1922-2021 sample and the 1995-2021 sample

Analysis & Results

We utilize survival analysis to estimate what factors explain (differences in) the average time between a starting point (in our case organizational birth or prior reform) to a given event (in our case organizational reform). Although the agency lifecycle literature initially focused just on termination events, recent literature has incorporated a broader focus on reforms and transitions in governmental organizations (Yesilkagit, 2022; Kuipers et al., 2018). This approach recognizes that 1) organizations are not solely created and terminated but also experience reforms during their life-cycle, and that 2) termination in the public sector is often a relative term, with terminations frequently reflecting transitions towards merged or split organizations instead of complete terminations.

Current approaches account for this broader focus by no longer solely seeing organizational death as survival analysis events, but by also including other reforms (Yesilkagit, 2021). We follow this approach, but expand on it by correcting for the lack of independence between events when an organization encounters repeated reform. Incorporating all events separately in a traditional Cox proportional hazards approach overlooks that multiple reforms may happen to the same organization, and that the probability of encountering an additional reform may therefore not be independent.

Conditional risk set models –an extension of the Cox proportional hazards model – correct for this by tracking how many events of interest an entity has experienced previously (Clark et al., 2003). By adding information on the ordering of events to the model and clustering standard

errors within an entity (reflecting that multiple events are clustered within the same id, in our case an organization) the model produces correct standard errors and consistent hazard ratios for repeated event analysis. Specifically, the dataset is stratified based on the *k*th event that an organization encounters, allowing the baseline hazard to be different for each *k*th event (Kelly & Lim, 2000). To generate the appropriate risk intervals in the data structure, a counting process is utilized that formulates time to event for an entity as is illustrated in Figure 1 (see Kelly & Lim, 1999). This means that we do not start counting time to event from the birth of an event onwards, as is common in survival analyses on agency termination that are currently published, but start counting after each reform event (e.g. in Figure 1, we would start counting towards event 2 once event 1 has occurred).
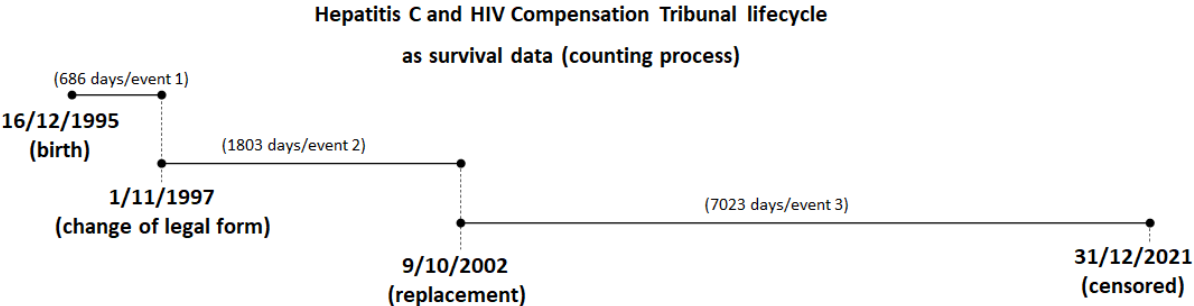

Figure 1: A schematic overview of a time to event data structure for the life-cycle of one ISAD organization, showing the counting process used for the risk intervals

Given the use of a Cox proportional hazards framework, several assumptions need to be taken into account. First, Cox models assume that hazard ratios are proportional over time, that is to say, effect sizes do not change over the years. This is a strong assumption when using a dataset spanning almost 100 years. Some relationships may change as the Irish context gradually changes. Therefore, we take a number of measures to test the robustness of results.

First, we analyze both the full 1922-2021 timespan and also a reduced 1995-2021 timespan. The 1995-2021 period is a significant one in Irish history, coinciding with a major expansion in administrative reform activity that parallels the Irish 'Celtic Tiger' period of economic growth and subsequent economic crisis from 2008. Therefore, if the data generating process is substantially different across periods of Irish history, this is likely to be the most important cutoff point. This allows us to ameliorate the impact of a number of potential confounding factors that may still be present in the 1922-2021 analysis, including major socio-economic change. It should be noted it is not our primary aim to compare different time periods. Instead, the reduced dataset is primarily aimed at preventing spurious conclusions by neglecting that hazard ratio's may have changed over time.

On top of this, it is possible to test the proportional hazards assumption by examining the Schoenfield residuals. Some evidence that the assumption is violated remains (specifically when examining specific coefficients instead of overall models). Under such circumstances, it is possible to add time-varying coefficients, which are interactions between the variable of interest and time, with the downside that the model becomes less interpretable. As results remain highly consistent between specifications with and without time-varying coefficients, we have opted to present the estimations without time-varying coefficients in the main text and present results with time-varying coefficients in Appendix 2.

As a reasonable amount of organizations are still alive at the end of our follow-up time (31-12-2021), these entities may encounter future reforms that are not measured. This is no issue, unless the censoring is informative (censored entities have a different hazard ratio than entities for which events are incorporated into the model, producing biased results (Clark et al., 2003)). This issue could arise for a small number of long-lived "dinosaur" organizations (Van Witteloostuijn et al., 2018), which seem to approach immortality (Kaufman, 1976). Some of these (including a library and a number of educational institutions) have existed for hundreds

of years without events relevant to ISAD. Therefore, in our main estimations, we exclude 19 entities that existed before 06-12-1922 and still existed at 31-12-2021 (the starting date and ending date of our dataset). Finally, entities may also experience left-censoring if they existed before follow-up started. We follow Van Witteloostuijn et al. (2018) and tackle this by incorporating a control variable (left-censored) to control for the bias that left-censoring may introduce.
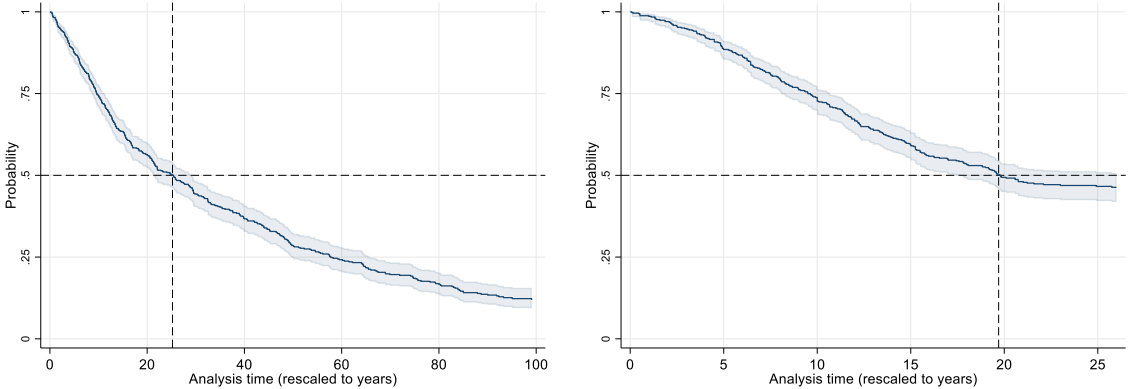
Figure 2: Kaplan-Meier survival estimate for included organizations (left: entire 99 year timespan, right: reduced 1995-2021 dataset)

Figure 2 displays the Kaplan-Meier survival estimate for all organizations in both the full and reduced datasets. The regression results in Table 2 suggest that nature and nurture together explain agency life-cycles, with each approach containing some elements of the puzzle. In this table, effect sizes are shown as hazard ratio's, as is common in survival analysis. A value above 1 suggests that an organization is at greater risk of encountering a failure event (in our case a new reform) than the reference category. A failure lower than 1 suggests that an organization is at lower risk of encountering a failure event.

To start with the institutional legacy paradigm, we find support for the hypothesis that reform begets reform -, albeit with an important nuance. It turns out that the impact of prior reform is robustly significant in the 1995-2021 context (both for the non-weighted dummy and the indicator that weights for potential impact of a reform), but is not significant when examining the longer 99-year period time period (see also Figure 3). This coincides with a major expansion in reform activity in the Irish public sector from 1995 onwards, suggesting that reform rates (and the impact of one reform on another) have become more relevant in recent years. For today's world, this result suggests that reforms may generate additional issues within an entity that – ironically – are often addressed through further reform. This is a highly relevant result, as such accumulations of reforms produce an array of negative psycho-social and organizational side-effects ranging from increased employee uncertainty to reduced innovativeness. However, it is also a nuanced result, with our evidence suggesting the impact of prior reform may be context-dependent, especially from a temporal perspective.
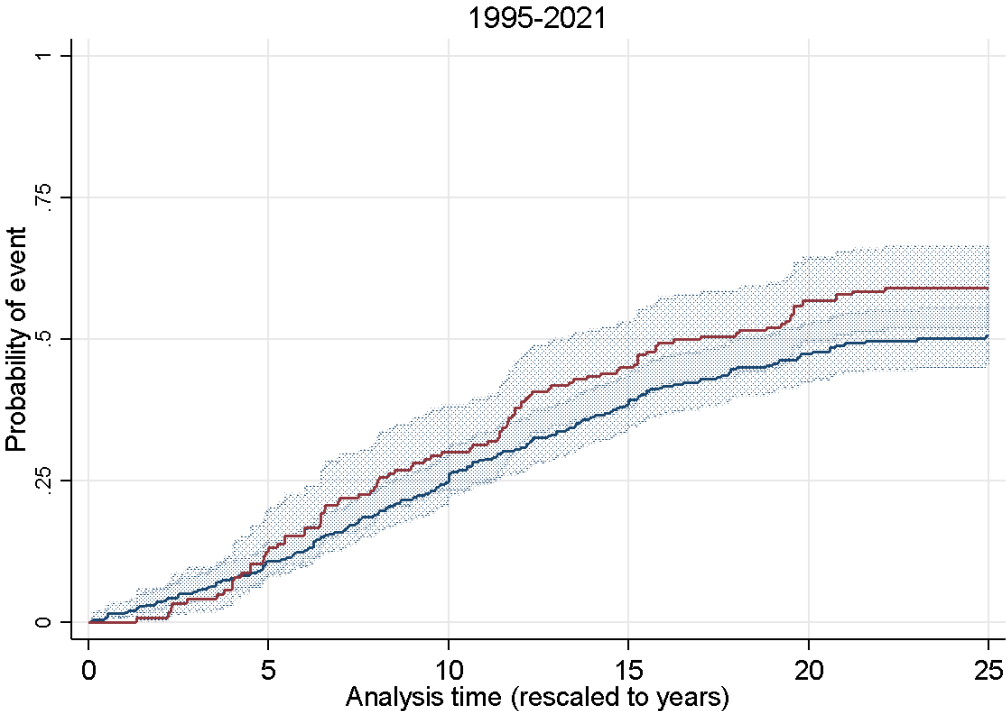

Figure 3: Kaplan-Meier failure survival estimate for impact of prior reform (1) in 1995-2021

Our models also provide evidence that the political environment plays an important role in the nurture debate. Although we generally expected a shift in coalition power from the two main parties in the Irish system - i.e. Fianna Fáil to Fine Gael (or vice versa) - to increase hazard for organizations, our findings suggest that this depends on how political turnover is operationalized. When examining the probability of being reformed in the government period following a turnover in lead coalition party, we observe hazard ratios under one, indicating a reduced hazard. However, when limiting ourselves to the 365 days following a coalition lead turnover, we instead – and in line with previous findings – observe an increased hazard (Kuipers et al., 2018). Thus, following a turnover in lead party there seems to be an early spike and then a lull in reform activity, initially increasing and then decreasing hazard ratios.

For the 1922-2021 period there is also evidence that when Fianna Fáil is in power instead of Fine Gael, organizations have a substantially reduced chance of being reformed (see Figure 4). This aligns with traditional expectations of these parties, with Fianna Fáil engaging in greater patronage of governmental organizations while Fine Gael traditionally supports a more minimal role for government. However, these differences between parties in power are only significant in the third model we run on the reduced 1995-2021 dataset. Extending findings from earlier studies on organizational deaths (e.g. Lewis, 2002; James et al., 2015; Kuipers et al., 2018), our analyses suggest that reforms may be explained by which party is currently in power and whether power has just been transferred from one dominant party to another, although this variable seems to be more important over the breadth of Irish history than in the more recent 1995-2021 context.
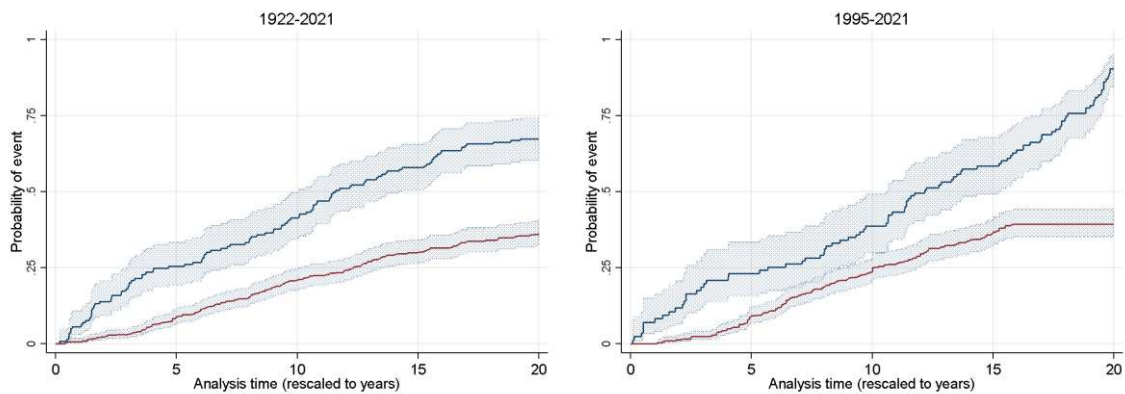
Figure 4: Kaplan-Meier failure survival estimate for Fine Gael in power (blue) versus Fianna Fáil in power (red)

Beyond nurture, we also find evidence that nature and hardwiring play a role, although effects are generally less pronounced in the reduced 1995-2021 dataset. Having regulation as primary task seems to produce relatively low levels of hazard, while advisory bodies seem to consistently score significantly higher (except for specification 6). Surprisingly, and contrary to initial expectations, adjudicatory tasks seem to increase hazard instead of insulating the entity. This likely reflects that many Irish adjudicatory organizations provide alternatives to courts, and therefore appear and disappear intermittently in response to social demands at a given time (similar to advisory bodies). Furthermore, we find mixed evidence on the relevance of delivery and transfer as tasks, with some specifications suggesting a positive effect while others do not.

Legal form is another hardwiring factor which may protect some organizations while exposing others. Non-statutory non-departmental bodies are characteristic of common law systems, and – as their name implies – are neither based on an organic statute nor integrated into a ministerial department. These entities are susceptible to sudden changes as they have hardly any legal insulation, and our analyses indeed suggest that these entities face the highest risk of reform (see Figure 5).

When looking at the relevance of policy field, we find subtle but reasonably robust evidence for an effect of being an entity operating in the policy domains of agriculture & environment, and seemingly for housing & community amenities. An interesting feature about the hazard ratios obtained for agriculture & environment is that they are reversed between the 1922-2021 and 1995-2021 analysis. Whereas agriculture & environment entities in the entire analysis have an increased hazard compared to the reference category, examining just the post-1995 period suggests that hazard is instead lower than the reference group. For the post-1995 analyses, this effect becomes non-significant when taking the average of all other policy fields (see Figure 6). The positive effect in the 1922-2021 analysis likely emerges due to the historical prominence economically and politically of agriculture in Ireland. However, post-1995 most agricultural policy is harmonized at the EU level, likely causing policy-making at the national level to be less dynamic and politically salient. Such unexpected effects from Europeanization are indicative of the importance of taking into account both temporal and policy sector specific contexts. For housing and community amenities, it is possible that political salience plays a role in stimulating the promulgation of further reform, and that this effect has remained consistent over time. However, as we possessed only 24 organizations in this policy field, these results would need to be replicated.

Moreover, there is limited evidence that enterprise & economic affairs and social protection have a positive effect in the 1922-2021 models, although these regressors are not significant in the 1995-2021 specifications. Social protection & employment still exhibits a positive (albeit non-significant) hazard ratio, implying that widened standard errors due to lower sample sizes may cause this difference between specifications (see Figure 7). For enterprise and economic affairs, the difference between specifications is somewhat more puzzling. Therefore, although we find evidence for the relevance of policy fields such as agriculture & environmental affairs,

other policy domain types still require further investigation. Policy areas seem an interesting avenue for further inquiry, but their effects may be limited and highly context-dependent.

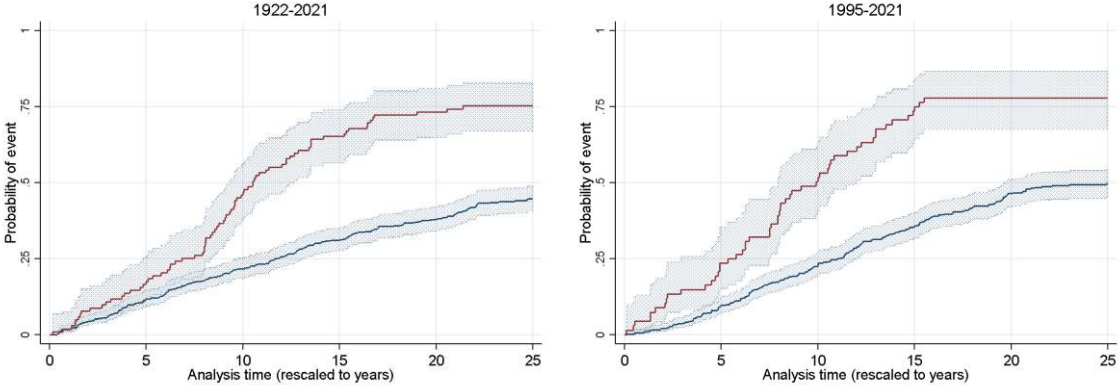*Figure 5: Kaplan-Meier failure estimate for non-statutory non-departmental bodies (red) versus other legal forms (blue) (rescaled to years)*
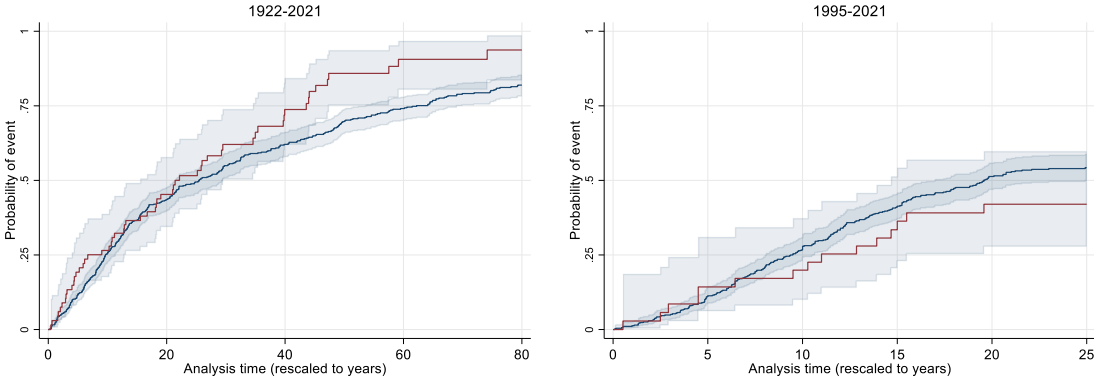

Figure 6: Kaplan-Meier failure estimate for agriculture & environment entities (red) versus entities in other policy fields (blue) (rescaled to years) (note that the x-axis for the left-hand figure is extended as significant effects begin to emerge late in an organization's lifecycle)
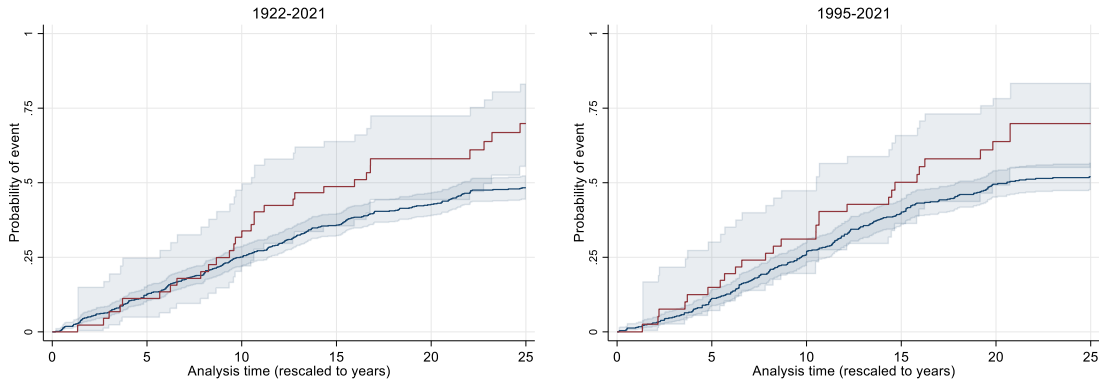
Figure 7: Kaplan-Meier failure estimate for social protection & employment (red) entities versus entities in other policy fields (blue) (rescaled to years)

	1922-2021			1995-2021		
	(1)	(2)	(3)	(4)	(5)	(6)
Impact previous reform (1)	1.191			1.473***		
	(0.21)			(0.22)		
Impact previous reform (2)		1.148	1.118		1.295***	1.316**
		(0.10)	(0.10)		(0.12)	(0.14)
Party in power (1= Fianna Fáil)	0.443****	0.441****	0.518****	0.861	0.857	0.491****
	(0.06)	(0.06)	(0.06)	(0.17)	(0.17)	(0.09)
Change in party in power (government period)	0.320****	0.318****		0.092****	0.091****	
	(0.04)	(0.04)		(0.02)	(0.02)	
Change in party in power (365 days)			1.412***			2.127****
			(0.18)			(0.44)
Policy field (other is reference category)						
Health	1.375	1.392*	1.275	1.294	1.307*	1.289
	(0.27)	(0.28)	(0.25)	(0.21)	(0.21)	(0.31)
Transport	1.462	1.441	1.531	0.836	0.786	0.629
	(0.41)	(0.40)	(0.47)	(0.30)	(0.29)	(0.26)
Agriculture & Environment	1.811***	1.801***	1.681***	0.670*	0.660*	0.519**
	(0.34)	(0.34)	(0.31)	(0.16)	(0.16)	(0.15)
Public Order & Safety	1.136	1.144	0.996	0.921	0.934	0.701
	(0.23)	(0.23)	(0.21)	(0.18)	(0.19)	(0.17)
Education, training & science	1.315	1.306	1.181	0.905	0.893	0.685*
	(0.24)	(0.24)	(0.20)	(0.15)	(0.15)	(0.14)
Social protection & Employment	1.883****	1.899****	1.711***	1.304	1.317	1.092
	(0.34)	(0.34)	(0.31)	(0.24)	(0.25)	(0.25)
Enterprise & Economic Development	1.579**	1.580**	1.696***	1.019	1.022	1.165
	(0.29)	(0.29)	(0.30)	(0.21)	(0.21)	(0.28)
Housing & community amenities	1.789**	1.745**	1.584*	2.196**	2.202**	1.695
	(0.45)	(0.44)	(0.42)	(0.71)	(0.72)	(0.66)
Recreation, culture & religion	0.960	0.965	0.741	1.322	1.328	0.991
	(0.25)	(0.25)	(0.19)	(0.33)	(0.33)	(0.24)
Task (regulatory is reference category)						
Adjudication	2.685****	2.701****	1.999***	1.680*	1.705*	1.190
	(0.69)	(0.69)	(0.46)	(0.52)	(0.53)	(0.36)
Advisory	2.484****	2.499****	2.036****	1.380**	1.402**	1.300
	(0.44)	(0.44)	(0.33)	(0.21)	(0.22)	(0.25)
Trading	1.370	1.389	1.048	2.196**	2.335**	1.705
	(0.36)	(0.36)	(0.25)	(0.75)	(0.78)	(0.56)

Transfer	2.012***	2.006***	1.862***	1.096	1.093	0.921
	(0.46)	(0.46)	(0.41)	(0.25)	(0.25)	(0.26)
Delivery	1.441**	1.446**	1.300	1.197	1.210	1.127
	(0.26)	(0.26)	(0.21)	(0.18)	(0.18)	(0.21)
Other	2.796****	2.815****	2.289***	1.634	1.661	1.172
	(0.75)	(0.76)	(0.68)	(0.65)	(0.67)	(0.49)
Legal form (statutory non-departmental body is reference category)						
Statutory Corporation	1.323*	1.306*	1.161	1.038	1.027	0.794
	(0.20)	(0.20)	(0.18)	(0.18)	(0.18)	(0.17)
Non-Statutory Non-Departmental Body	1.983****	1.993****	2.063****	2.061****	2.050****	2.192***
	(0.33)	(0.33)	(0.35)	(0.41)	(0.41)	(0.54)
Executive Agency (without independent legal personality)	1.027	1.015	0.992	1.092	1.084	1.335
	(0.24)	(0.24)	(0.27)	(0.23)	(0.23)	(0.41)
Company limited by guarantee	0.792	0.794	0.844	0.670	0.670	0.662
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.20)
Constitutional, office holders, tribunals	0.765	0.763	0.795	0.829	0.825	0.697
	(0.19)	(0.19)	(0.19)	(0.27)	(0.27)	(0.23)
Public limited company	0.899	0.891	0.971	0.542	0.523	0.671
	(0.32)	(0.32)	(0.32)	(0.22)	(0.21)	(0.27)
Chartered Corporation	0.707	0.679	0.467**	0.613	0.619	0.385
	(0.21)	(0.20)	(0.15)	(0.70)	(0.71)	(0.43)
Private limited company	1.655**	1.653**	1.551*	1.259	1.251	1.058
	(0.37)	(0.37)	(0.35)	(0.40)	(0.39)	(0.37)
Leftcensored	1.207	1.211	1.688**	0.739**	0.759**	1.028
	(0.31)	(0.32)	(0.43)	(0.10)	(0.10)	(0.15)
Downturn 1980's	1.322	1.310	1.283			
	(0.25)	(0.25)	(0.27)			
Celtic tiger	1.760****	1.746****	2.384****			
	(0.26)	(0.25)	(0.31)			
Financial crisis 2008	2.484****	2.495****	1.975****	7.184****	7.271****	2.052***
	(0.38)	(0.38)	(0.30)	(1.94)	(1.95)	(0.46)
Observations	808	808	808	595	595	595
Failures (reforms)	497	497	497	282	282	282
Chi²	428.30****	430.53****	284.16****	326.86****	334.29****	223.10****
Proportional hazards test	0.113	0.120	0.568	0.000****	0.000****	0.000****

Table 2: conditional risk set models (estimated within a Cox proportional hazards framework) on organizational reform (cluster-robust standard errors in parentheses)

Discussion

This paper's aim has been to stretch the boundaries of organizational life-cycle studies by exploring the impact of both foundational conditions (nature) and developments that occur during their lives (nurture). Drawing on a dataset covering almost 100 years and 634 organizations, our findings suggest that both nature and nurture have roles to play. Moreover, we find evidence that the study of nurture factors should not be limited to the organization's environment, but may also be found in the organization's own life-cycle.

Specifically, for the period 1995-2021, we find evidence in support of hypothesis 1, namely that previous reform is a catalyst for future reform. As argued by Brunsson (2006), reforms are often oversold as regards their ability to solve problems, while also introducing multitudes of new problems (Wynen et al., 2017; Oreg et al., 2011). Unsolved problems and new problems stemming from the previous reforms themselves provide impetus to develop new reforms, thereby continuing the cycle. Even if previous reforms were unsuccessful, organizational learning and organizational memory are often insufficient to capture how new reforms should be approached differently, meaning that entities may not be able to exit this cycle (Brunsson, 2006; Pollitt, 2007).

Although Brunsson (2006) described this process for organizations generally, it should be noted that in the public sector many reforms stem from political intervention. Given differing political priorities and electoral turnover (Pollitt, 2007; Glatter, 2017), learning processes on how reforms should be applied differently may be less pronounced in political decision-making procedures, implying that public organizations may be particularly susceptible to hazard from previous reform. Interestingly, this effect seems to emerge particularly in recent years (1995 onwards), while not emerging from the 1922-2021 specifications. This may be indicative that the rate of reforms being imposed is gradually speeding up in Ireland (MacCarthaigh, 2012), offering entities less respite from previous reforms.

Similar to previous studies, we find evidence that the political environment (which party is in government and whether there has been a change during the year of a reform) is among the dominant factors driving transitions (Kuipers et al., 2018; Lewis, 2002; Boin et al., 2010). In line with hypothesis 2 and previous findings (Götz et al., 2018; Carpenter & Lewis, 2004), most of our specifications suggest that the liberal-conservative party, with a greater ideological focus on limiting government intervention and size, is more likely to reform public organizations. By contrast, the party geared slightly more towards welfare and patronage of governmental

organizations is less likely to reform public organizations. Although in line with previous findings on termination events (Kuipers et al., 2018), our test does extend this argument to reforms in general, including reform events that do not terminate public organizations (see also Yesilkagit, 2021).

Changes to the lead party in power were also relevant, but not always in the way we expected. In the initial 365-day period after a change in the lead coalition party took place, we indeed observe heightened hazard for ISAD entities, supporting hypothesis 3. However, the alternative operationalization, which examines the hazard in the entire government period following a lead party turnover, suggests a reduced hazard. We interpret this as evidence that there is an initial spike in reform activity as the new coalition seeks to signal its ambitions and new directions, but that this spike is followed by a lull in the quantum of reforms being imposed. This intermediate time period may be the phase in which the new government and administration become more acquainted and design long-term reform plans, which only bear fruit several years later.

In addition to the nurture paradigm, the nature paradigm also receives support from our results, with analyses providing evidence that task, policy domain and legal insulation all play roles. The impact of legal insulation is apparent in some legal forms, but not in others. Non-statutory non-departmental bodies display the highest hazard ratios in the Irish context, consistent with the fact that these entities lack any substantial form of formal insulation against intervention, missing both legal personality and a statutory basis. This provides some support for hypothesis 4, which posited that legal insulation would protect entities from reform, and is in line with previous findings on hardwiring (Moe, 1995; Lewis, 2004; Boin et al., 2010).

Statutory bodies, private legal forms and statutory non-departmental bodies exhibit mid-level hazard ratios compared to the reference category and other legal forms, while private limited companies display somewhat elevated hazard ratios. These patterns do not fit neatly with the

hardwiring hypothesis. statutory companies, in particular, should be relatively well-insulated. Similarly, private limited companies should also have at least some degree of insulation. As statutory bodies are often relatively salient politically, it may be necessary to capture media attention in future studies to further disentangle this result. In sum, our findings on the legal insulation hypothesis are mixed, with some of our evidence suggesting that there is some truth to the claim that legal forms matter, but other evidence pointing to ulterior factors.

Finally, our study looked policy domain and task (hypotheses 5 and 6). Although previous studies have already unearthed that regulatory and advisory tasks may respectively protect and expose organizations to terminations (Kuipers et al., 2018), our findings in the context of reforms are broader. First, we find that although regulatory tasks will reduce hazard, we also obtain the surprising result that adjudication tasks increase hazard ratios instead of reducing them. This is a puzzling finding, as we would normally expect both regulatory and adjudicatory authorities to benefit from credible commitment by political entities. The phenomenon may be explained by the fact that adjudicatory bodies in the Irish context are often set up as mediation alternatives to courts. These mediation body initiatives are frequently responses to urgent and changeable societal demands (such as crises requiring redress), meaning they are also reformed or abolished whenever they are no longer needed – similar to advisory bodies (O'Leary, 2015). Advisory tasks heighten hazard ratios, supporting evidence presented in previous studies (O'Leary, 2015; Kuipers et al., 2018). Here, the interpretation is that these bodies are frequently set up for ad hoc tasks or may become redundant over time, leading to reform or abolishment (O'Leary, 2015; Kuipers et al., 2018). In addition, service delivery, trading and transfer tasks – three previously unstudied task types to our knowledge – seem to increase the probability of reform for an organization in at least some specifications. This effect may be explained by the high public salience of entities with these primary task types, as such organizations often provide services directly to or subsidize societal stakeholders. Such higher levels of salience

may subject organizations with transfer tasks to more volatile political, media and societal environments, increasing the incidence of reform. Together, our results support hypothesis 5, suggesting that future studies should integrate a broader set of task types than only regulatory and advisory ones. At the same time, some of our findings require further exploration to test their robustness, in particular with regard to the task types delivery, trading and transfer.

Findings for policy domain – a previously under-investigated nature factor – suggest that this may also be a hardwiring factor of at least some relevance, although many results were tenuous and strongly context-specific. Similar to Yesilkagit (2021) and Chen et al. (2019), we find some evidence that the domains of social protection & employment and enterprise & economic affairs display elevated hazard ratios, although this was not robust in 1995-2021 specifications. New to our knowledge are our findings on agriculture & environment. The initially increased hazard ratio for agriculture & environment makes sense, as agriculture has long been a mainstay of the Irish economy. Surprising, however, was its reversal to a lowered hazard ratio post-1995, which we suspect is due to European integration (agriculture over time has become one of the most harmonized EU policy areas, leaving relatively little space for national-level dynamics). This emphasizes how policy field factors are relevant, but may differ strongly across regulatory and temporal contexts.

The explanation for the heightened hazard ratio's for social protection & employment and housing & community amenities may be similar to why transfer tasks matter: entities in these policy domains may face higher political, media and societal scrutiny due to the importance of their work for societal stakeholders. This suggests that constellations of task and policy domain may be jointly important – a potential avenue for future inquiry that was beyond the scope of this contribution. One surprising divergence from the pattern that salient domains display higher hazard ratios must be noted: there is hardly any evidence that entities with health as their policy domain exhibit a heightened risk of reform. This was somewhat surprising as health is a

particularly politically salient domain in the Irish context, although the lack of findings may be attributed to the fact that salient healthcare services were for many decades sub-national in Ireland and so not captured in the ISAD.

Throughout the study, there were notable differences in results when examining the entire period from 1921-2021 compared with a subperiod running from 1995-2021. Whereas our political environment variables attained consistent results across both time-periods, some other variables (including the impact of prior reform and several policy field variables) showed differing effects in the entire sample and in the subsample. This makes sense, as the early and mid-twentieth century context differs strongly from the post-1995 context. Around 1995, technological developments, Europeanization and political variables became more prominent factors for the Irish public sector, all contributing to both higher overall reform rates and the relevance of different factors in explaining these reforms. This yields one final important takeaway from our study, namely the degree to which the relevance of prior predictors may be contingent on the time-period studied. Although we are currently unsure whether this result generalizes to other countries, future studies would do well to consider to what degree hazard ratios and indeed the impact of the variables captured by these hazard ratios are consistent over time. Our study tentatively suggests that finding true 'laws' that explain agency termination or agency reform may be more difficult than is often assumed.

It is also worth devoting some attention to the generalizability of this study. This differs according to the factor under consideration. Some variables, such as the impact of the political environment, have already been extensively discussed in the literature and turn out to also be of relevance in the Irish context. Therefore, we are confident these will generalize to future settings. Newly examined factors, foremost among them being the impact of prior reforms, may also be generalizable. Other commentators have noted the increasing prevalence of reforms as routines and symbols in the Western world, and the sometimes excessively frequent use of the reform instrument (Pollitt, 2007 ; Kleizen et al., 2018). We are therefore tentatively optimistic that prior reforms will also be a prominent driver of future reforms in these settings. Conversely, the results obtained for factors such as legal insulation did not entirely align with previous findings and extant theory. This casts doubt on the degree to which factors such as

legal insulation can easily be generalized across country settings, and emphasizes the need to closely consider the local context and potential ulterior variables that may be at play. Finally, some variables may be relatively unique to the Irish setting. For instance, the prominence of agriculture as a policy field in determining agency hazard is in all likelihood due to the historical reliance of the Irish economy on this sector, implying these findings may not always generalize.

Conclusions

Our study points to the complexity of explaining reform over time in public organizations. Not only do the birth characteristics and environmental approaches studied in previous contributions have a (sometimes unexpected) role to play, internal 'institutional legacy' perspectives also seem to form an important piece of the puzzle (Kuipers et al., 2018; Lim, 2021). Therefore, this study adds important evidence to the extant body of knowledge on public organizations' life-cycles. Moreover, we advance the literature methodologically by incorporating conditional risk set models on almost 100 years' worth of Irish data, allowing for the more realistic assumption that organizations experience multiple events over their lifetimes which are inter-correlated. Our study is not merely of academic interest, however. With researchers finding that the pace of reform is steadily increasing over time (MacCarthaigh, 2012; 2014), that reforms do not always have the desired effects (Oreg et al., 2011), and that reforms frequently produce their own problems for organizations (Brunsson, 2006; Kleizen et al., 2023; Wynen et al., 2017; De Vries & De Vries, 2023), explaining the conscious and subconscious reasons that entities and politicians develop reforms is becoming increasingly important. As reforms are relevant, for better or for worse, for public sector organizations' functioning, understanding why reforms occur in the first place may allow practitioners to develop more coherent strategies in managing them.

Our study does have several limitations. The first is the issue of mergers and splits. Although our conditional risk set approach allows multiple replacements, changes of legal form,

secessions, absorptions, etc. per organization, we had to end an organization's lifetime when it encountered either a merger or a split to avoid counting reforms twice. This remains an imperfect approach, as the same employees, tasks, functions and values are likely still present in (components of) the newly merged entity. Future studies could consider ways to account for such problems, even if this requires other approaches than survival analysis (qualitative longitudinal analyses may offer some respite here). Moreover, some issues of omitted variable bias, reverse causality or simultaneity may remain. In particular, although we argue that reforms will indeed fuel future reform, it may also be that third variables such as media salience and reputation may still play some role here (e.g. Chen et al., 2022). It may be that reforms post-1995 are in part driven by the increased speed and comprehensiveness of news distribution, which may have driven greater levels of felt accountability (Overman & Schillemans, 2022) among public organizations and politicians, leading to an uptick in reform activity as a symbol of responsiveness (Brunsson, 2006). Although data on such factors could not be gathered over the close to 100 years of data in our study, future contributions may attempt to account for these.

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Appendix 1: description of legal form, task and policy field types

For the complete codebook of the ISAD, please refer to http://www.isad.ie/files/Background.pdf

Here, we list the recoded data categories for the purposes of the current analysis. We provide lists for the ISAD variables legal form, policy field and task. We also provide an overview of the newly gathered variable on time periods.

LEGAL FORM (SOURCE, ISAD)

CODE	Description
1 – STATUTORY CORPORATION	These are organizations established by legislation which states that they have a corporate form, and which derive their authority from this founding (or amending) statutes, e.g. The Equality Authority and An Bord Bia (Food Authority).
2 – STATUTORY NON-DEPARTMENTAL BODY	These bodies are established by legislation but do not have a corporate form and do not belong in any of the other categories, e.g. The Irish Legal Terms Advisory Committee and the Residential Institutions Redress Board.
3 - NON-STATUTORY NON-DEPARTMENTAL BODY	This is a residual category of organization with neither corporate form nor a statutory basis, e.g. the National Competitiveness Council. It includes a number of organizations that emerged in an ad-hoc and/or non-statutory manner, but existed for a sustained period of time, e.g. the Butter Marketing Committee (1935-61). It also includes bodies that fulfil important public functions although private or voluntary in ownership status, e.g. The Law Society.
4 – EXECUTIVE AGENCY	This code is used for units within ministerial departments that are presented as being separate from the typical structures of the office. They are typically engaged in service delivery functions and have their own chief executive/director's office, e.g. The Prisons Service. As noted above, some of these bodies have been of short duration but merit recognition within the database, e.g. the Probation and After-care Service
5 – COMPANY LIMITED BY GUARANTEE	These are companies with no shares, but created by subscription of guarantors, which often have a statutory basis for their actions, e.g. The National Concert Hall Limited and Pobal.

6 – PUBLIC LIMITED COMPANY	These are companies with shares listed on stock exchange. This option is also given to public companies (listed) with majority government shareholding and/or 'golden' share, e.g. Bord na Móna and the Housing Finance Agency
7 – CHARTERED CORPORATION	These organizations pre-date 1922 and are usually established by private legislation and/or charters. 'royal' bodies are key examples here, e.g. The Royal Irish Academy and the Royal College of Surgeons of Ireland
8 – PRIVATE LIMITED COMPANY	These are companies with shares not listed on the stock exchange but which are either publicly owned or which exercise monopoly control under licence or whose boards are subject to public appointment, e.g. An Post and Coillte Teoranta
9 – OTHER	Combined category of entities including: statutory and non-statutory tribunals, constitutional and governmental offices and statutory office holders. Each of these categories could not be included separately in the model as their numbers were insufficient.

TASK (SOURCE, ISAD)

CODE	Description
1 – ADJUDICATION & REGULATORY	Combines entities with a task in adjudication (commonly applies to organizations created as alternative to judicial proceedings) and regulatory (supervision and enforcement) tasks (i.e. organizations that have the authority, statutory or otherwise, to impose rules and sanctions).
2 – ADVISORY, INFORMATION-PROVIDING AND POLICY FORMATION	Entities providing expert advice, interest representation, information or directly formulating policies (with policy formation being exceedingly rare in the studied set of entities)
3 – CONTRACTING & TRADING	Contracting agencies are concerned with developing service specifications or capital Projects for tendering, and for setting the terms of contracts with private firms or commercially run public sector agencies such as public corporations. Trading entities operate directly in economic markets in a fully or quasi-commercial mode, or they deliver services to other organizations in the public sector but fully charge them for the costs involved.

CODE	Description
4 – TRANSFER	Transfer agencies handle payments of some form of subsidy or entitlement by government to private individuals or firms. They are above all money-moving organizations. Examples include the Arts Council (1951) and the Higher Education Authority (1968
5 – DELIVERY	Organizations performing this function deliver services directly to citizens or enterprises, or carry out policy implementation using their own staff. Their activities are usually labour intensive and they typically have large core budgets which absorb a high proportion of their bureau and programme budget. Examples include the National Gallery of Ireland (1854) and An Post (Irish postal service, 1984)

POLICY FIELD (SOURCE, ISAD)

CODE	Description
1 – HEALTH	Organizations in the area of health and care, either indirectly or as direct service providers
2 – TRANSPORT	Organizations operating in the area of transport, such as public transit organizations
3 - AGRICULTURE & ENVIRONMENT	Entities working in agriculture, food, fisheries, environmental protection, etc.
4 - GENERAL PUBLIC SERVICES, INTERNATIONAL AFFAIRS AND COMMUNICATION	Organizations outside a specific policy area, as well as organizations in international affairs and the area of (tele)communication.
5 - EDUCATION, TRAINING AND SCIENCE	Under fives; primary schools; secondary schools; further education; higher education; student support; training; science and technology
6 - SOCIAL PROTECTION & EMPLOYMENT	Incapacity, disability and injury benefits; state pensions; public sector occupational pensions; widows' benefits; family benefits, income support and tax credits; unemployment benefits; employment policies. housing benefits; personal social services; administration and miscellaneous services
7 - ENTERPRISE & ECONOMIC DEVELOPMENT	Economic development and trade; support for business; regional policy
8 - HOUSING & COMMUNITY AMENITIES	Local authority housing; other social housing; other housing and community service
9 - RECREATION, CULTURE AND RELIGION	Heritage, arts, libraries, and films; sport and recreation; broadcasting; lottery; other
10 - SAFETY & DEFENSE	Public safety and defense organizations

CODE	Description
1 – DOWNTURN 1980'S	Captures the economic downturn in the 1980's, during which the country saw poor economic performance, excessive public debt and emigration. Period runs from 1-1-1980 to 31-12-1987.
2 – CELTIC TIGER PERIOD 1990'S	Captures a period of strong economic growth during the 1990's, which saw high foreign direct investment (FDI) and improved economic management. Period runs from 1-1-1995 tot 21-10-2008 (start of the financial crisis).
3 – DOWNTURN 2008	Captures the financial crisis emerging in 2008, which affected the Republic of Ireland particularly strongly. The country entered into a recession, major expenditure cutbacks were enacted and the country required financial assistance from the EU and IMF to tackle deficits. Runs from 22-10-2008 to 23-2-2015, corresponding to the final manifestation of the anti-austerity movement.

Appendix 2: robustness tests incorporating time-varying coefficients

Based on an examination of the Schoenfield residuals for each coefficient in columns 3 and 6 of Table 2 (whenever these residuals are significant at the 0.05 level), the robustness tests shown here incorporate time-varying coefficients. That is to say, an additional regressor is added specifying an interaction with time. As proportional hazards tests on individual coefficients can produce different results based on the exact specification, different time-varying coefficients are entered for the 1922-2021 model and the `1995-2021 model. Moreover, the interpretation of the original coefficient changes when the time-varying coefficient is significant, such that a positive hazard ratio of the main regressor shows an initial increase in hazard, which subsequently changes over time. If the accompanying time-varying coefficient is positive, the hazard ratio gradually increases over time. If it is negative, the initially positive hazard ratio decreases over time.

	1922-2021	1995-2021
Impact previous reform (2)	1.122	1.232*
	(0.10)	(0.13)
Party in power (1= fianna fáil)	0.537****	0.605**
	(0.07)	(0.14)
Change in party in power (365 days)	1.423***	2.582****
	(0.18)	(0.56)
Policy field (other is reference category)		
Health	1.282	1.201
	(0.26)	(0.31)
Transport	1.485	0.322*
	(0.47)	(0.19)
Agriculture & environment	1.694***	0.584*
	(0.31)	(0.18)
Public order & safety	1.060	0.374**
	(0.22)	(0.15)
Education, training & science	1.239	0.722
	(0.22)	(0.16)
Social protection & employment	1.742***	1.098
	(0.33)	(0.28)
Enterprise & economic development	1.709***	1.088
	(0.31)	(0.29)
Housing & community amenities	1.669*	1.797
	(0.44)	(0.76)

Recreation, culture & religion	0.757	0.966
	(0.20)	(0.24)
Task (regulatory is reference category)		
Adjudication	1.889***	0.490
	(0.44)	(0.27)
Advisory	2.050****	1.410
	(0.34)	(0.31)
Trading	1.103	1.846*
	(0.27)	(0.65)
Transfer	1.847***	1.142
	(0.41)	(0.37)
Delivery	1.362*	1.314
	(0.23)	(0.27)
Other	2.337***	1.493
	(0.75)	(0.62)
Legal form (statutory non-dePARTMENTAL BODY IS REFERENCE)		
Statutory corporation	1.117	0.832
	(0.18)	(0.18)
Non-statutory non-departmental body	2.019****	2.209***
	(0.34)	(0.54)
Executive agency (without independent legal personality)	1.002	1.210
	(0.27)	(0.38)
Company limited by guarantee	0.814	0.704
	(0.18)	(0.21)
Constitutional, office holders, tribunals	0.828	0.698
	(0.20)	(0.25)
Public limited company	0.863	0.678
	(0.29)	(0.27)
Chartered corporation	0.488**	0.504
	(0.16)	(0.55)
Private limited company	1.404	2.169
	(0.32)	(1.10)
Leftcensored	1.536	0.793
	(0.40)	(0.12)
Downturn 1980's	0.515	
	(0.23)	
Celtic tiger period	1.829***	
	(0.35)	
Financial crisis 2008	1.505**	0.095****
	(0.29)	(0.05)
Time-varying coefficients		
Policy field (transport)		1.069*
		(0.04)
Policy field (public order & safety)		1.063**
		(0.03)
Task (adjudication)		1.093***

		(0.04)
Legal form (private limited company)		1.063**
		(0.03)
Leftcensored		1.058
		(0.05)
Downturn 1980's	1.046****	
	(0.01)	
Celtic tiger period	1.012**	
	(0.00)	
Financial crisis 2008	1.014***	1.368****
	(0.01)	(0.05)
Observations	808	595
FAILURES (REFORMS)	497	282
CHI2	305.24****	397.02****