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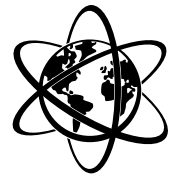

The evolution of higher education rules: evidence for an ecology of law

Arjen van Witteloostuijn and Gjalt de Jong

Abstract

Politicians have displayed a keen interest in the build-up of regulations and bureaucracies for quite some time now. A case in point is the Netherlands. The second Balkenende cabinet, though, vowed to downsize the number of rules as one of its main policy initiatives. Evaluating the success of such a policy requires the measurement of changes in rule volumes. Doing so is no easy task. Using higher education legislation as a case study, this article attempts to chart and explain developments in regulation volumes for the period 1986–2004. For the time being, there appears to be no evidence that rule levels are on the decline – in fact, the reverse is the case. We also provide evidence for a so-called ecology of law, suggesting that the rules-breed-rules mechanism is difficult to put to a halt.

Points for practitioners

Policy-makers can design different mechanisms aimed at constraining the ecological processes that would otherwise lead to rule overproduction. No introduction of new rules and, at most, only amending existing rules to new circumstances would be the most efficient way to reduce the rule birth rate. However, this is easier said than done. A more realistic option is to attach an explicit date for repeal of any new rule – a so-called sunset clause. This pre-specified end-date for a new rule circumvents the fact that existing rules are almost never annulled. Once rules come into existence they are there to stay. Another option would be that for every new rule that is introduced, a number of existing rules of similar size should be repealed. A related policy is the introduction of a quota system – i.e. a fixed number of new rules per ministry per year.

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Introduction[1]

Many organizations and citizens complain about increasing bureaucracy and over-regulation. Managers from education institutes, for example, regularly report long lists of often conflicting and incomprehensible ministerial guidelines and regulations. In a similar vein, the business world blames reduced competitiveness on increasing regulation. Although this lament has not surfaced overnight, it does appear to be attracting more and more attention in Western societies. This was one of the main reasons, for instance, why the Dutch and the French voted against a European constitution. Another case in point is Germany, where the Merkel administration has promised to reduce the bureaucratic burden of over-regulation. Ever since the rise and fall of Pim Fortuyn, Dutch politicians have joined in the plaintive chorus, too. Witness the Balkenende II cabinet's plan to reduce the administrative burden for the business world by 25 percent. A further example is a recent report from the Dutch Scientific Council for Government Policy entitled *Proofs of Good Service Provision* (Wetenschappelijke Raad voor het Regeringsbeleid, 2004). Behind this optimistic title lurks a sobering analysis: the quality of public service is suffering under a rising stream of rule changes, often under the watchful eye of one of the many new bodies in the regulatory land.

The theme of the lament is not only the fatigue that individuals face in their dealings with bureaucracy. A second tune highlights the negative impact on the economy and society as a whole. Evidence for the performance-damaging effect of over-bureaucratization and over-regulation is reported by, for example, Olson (1996). Under the yoke of increasing bureaucracy and over-regulation, processes and transactions are becoming inefficient, new initiatives are nipped in the bud, employers and employees lose motivation, the effectiveness of policy implementation is reduced, and so on. The 1996 study by Olson points out that low economic growth is in many cases caused by 'wrong' (read 'bureaucratic') government policy that leads to a considerable waste of money and resources. Another example is the small business growth-reducing impact of regulation, as revealed in the comparative study of Capelleras et al. (2005).[2]

In order to design effective de-bureaucratization measures, we need to understand why rule overproduction occurs in the first place: what are the underlying processes driving the never-ending production of new rules? In recent years, empirical research within organization studies has begun using counting methods to examine the evolution of organizational bureaucracies – in other words, counting the number of regulations that are 'born', changed or 'killed' each year, often over a period of several decades. A good example in this tradition is the US study of red tape at Stanford University during the 1960s, 1970s and 1980s (Schulz, 1998; March et al., 2000). A key finding was that the number of rules had jumped from 58 in 1961 to 127 in 1987. New rules were introduced with great regularity, while old ones were seldom or never scrapped. The most alarming conclusion was that the more rules there are, the more rapidly will new rules emerge. The growth in the number of rules is therefore an explosive process – and one which cannot be stopped easily. The aim

of the current study is to apply this ecological logic to the case of *nation*-level rule production.

De Jong and Herweijer (2004) have attempted to chart the number and the growth of rules in the Netherlands using counts. The results can be seen at a glance in Table 1.

Table 1 The growth of Dutch national rules

Year	Laws	Orders in council and royal decrees
1980	1100	
1988	1432	
May 2002	1722	2611
January 2003	1749	2644
January 2004	1800	2675

Source: de Jong and Herweijer (2004).

For the most recent three years, de Jong and Herweijer (2004) distinguish between formal laws, orders in council and royal decrees (for definitions, see below). In the period from 1980 to January 2004, the number of laws rose by over 60 percent from 1100 to 1800. By January 2004, over 12,000 formal laws, orders in council and ministerial regulations were in place. Opinions differ as to how much impact the European Union has had on Dutch regulation.[3] In general, however, studies show that a clear majority of regulations are national in origin.

In the following sections, we report on the results of a detailed case study of the evolution of regulation in the specific field of higher education in the Netherlands. In doing so, we are contributing to the existing literature in at least five ways. First, we are adding a count database to the meagre supply of such databases. Because counts like that of de Jong and Herweijer (2004) are few and far between, we need to build up a collection to flesh out studies of what determines the evolution of regulation. Second, we need rule counts in order to test 'common-sense' hypotheses concerning regulation growth or reduction. After all, the perceived burden of bureaucracy in the field is often at odds with what is proclaimed in government or political quarters (REA, 2005). The question is, therefore, whether public perceptions are based on reality. The Dutch Ministry of Education, Culture and Science (EC&S) is an interesting case in this respect, given its reputation as a rule-producing machine. Third, we provide insight into a counting methodology. Because counting rules is no easy task, we hope here to make a contribution to the accumulated knowledge of effective and workable methods. Fourth, we develop and provide evidence for a so-called ecology of law, suggesting that the rules-breed-rules mechanism is difficult to halt. Indeed, the empirical test of such ecological insights cannot be carried out without detailed rule count databases. Fifth, we present the results of a first regression analysis, with rule birth as the dependent variable. Although our time series is too short to estimate extensive models, our more limited specification nicely illustrates what an ecology of rules has to offer. To set the scene, we first briefly summarize this ecology of law argument in the next section.

Ecology of law

Building upon the study of the evolution of organizational rules (Schulz, 1998; March et al., 2000), van Witteloostuijn (2003) suggests a so-called ecology of law. Using metaphors derived from the bio-ecology of species, the ecology of law focuses on the explanation of the evolution of rules by identifying the mechanisms that drive the 'birth', 'mutation' (or change) or 'death' of rules. In a nutshell, such an ecology of law would imply three hypotheses, at least. Of course, more hypotheses can be developed. However, in the context of the current study, this set of three hypotheses presented below suffices to bring out the core of an ecology of law.

First, the legislation process has a powerful internal dynamic. The social organization of rule production resembles a classical Weberian bureaucracy. That is, the growth in the number of rules increases as the stock volume of rules increases. As a consequence, the rule stock expands almost 'of its own accord'. Old regulations and laws are seldom or never scrapped; at most, they are amended. De Jong and Herweijer (2004: 236–7; our translation) conclude that '[l]aws are usually amended, with many amendments leading to the addition of articles. During their life most laws expand [and] . . . departments gradually increase their productivity in the area of ministerial regulations.'[4] A simple conclusion presents itself: 'rules breed rules'. The first hypothesis is therefore that *rules create rules*. That is,

> Hypothesis 1 (rules breed rules): The larger the stock of rules, the higher the growth rate of rules.

The growth in rule production is reinforced by the interaction with rule producers. Our inspiration here is the theory behind the impact of top managers' demographic characteristics on decisions, behaviours and achievements (Finkelstein and Hambrick, 1996). There, the argument is that managerial characteristics, such as educational background and career experience, are key determinants of what managers think, prefer and do (see, e.g. Boone et al., 2004, 2005). The second hypothesis is as simple as the first: 'rule-makers breed rules'. The increase in national rules will rise in proportion to the number of rule-making and rule-monitoring officials. So, *rule-makers breed rules*. This logic gives

> Hypothesis 2 (rule-makers breed rules): The larger the number of rule-makers, the higher the growth rate of rules.

Further, following the above managerial demography logic, the argument is that, for instance, the Ministry of Justice will continue to produce more rules as it employs more legally trained policy analysts. The Second Chamber of the Dutch Parliament will pass more legislation on education when the number of educational specialists increases. If, for example, the Minister of Education has a background in education, he or she will display a greater drive to produce rules. The close network of educational specialists in the Second Chamber and the sizeable bureaucracy thus explains why the Ministry of Education, Culture and Science is notorious for excessive regulation. The third hypothesis is therefore a more subtle one: rule-makers become more productive in proportion to their affinity with the substance of the rules – or, *affinity breeds rules*. This suggests, for the example of the minister,

Hypothesis 3 (affinity breeds rules): The higher the minister's affinity with her or his domain, the higher the growth rate of rules.

In this article, we will test these three hypotheses. First, though, the next section will offer the key part of the raw material needed to do so: the evolution of the number of rules over time in a specific domain (higher education), decomposed into the underlying rates of birth, change and death.

Collecting data

The critical unit

The many definitions of what constitutes a 'national rule' in both the academic literature and everyday usage have given rise to a Babel-like confusion. This is largely because the different groups of rules and different levels of regulation are run together. For national regulations, we can distinguish between laws in the formal sense (as laid down by parliament), orders in council and royal decrees (as determined by the cabinet), together with ministerial guidelines and circulars (as established by a specific ministry). The regulations can be categorized according to their legal status, which is connected with the body establishing them. Laws in the formal sense have the highest status; they are laid down by parliament and hence pass through the entire – time-consuming – institutional legislative process. For this reason, we have opted in the present study to examine the dynamics of formal laws – in this case, the focus has been on legislation relating to higher education.[5] Follow-up research can, of course, target other forms of regulation, since laws are only the formal tip of the regulation iceberg.[6]

An act is a collection of national regulations that are created during the institutional process.[7] A formal law has a particular structure, with the text being divided into titles, sections, articles, sub-articles, paragraphs, clauses and sub-clauses. This division into different levels is an important one. Each section of a law deals with part of the domain in question. The literal text of a law – that is, the lowest level within the structure of the act – codifies the national regulations and the outcomes of the national institutional decision-making process for a specific domain. Our focus is on the lowest level of text in a formal law (frequently a clause or sub-clause, but often a paragraph) as the critical unit of study. This allows us to chart the dynamics of national regulation at the most detailed level, thus maximizing the flexibility of the resulting database: where necessary, analysis can be carried out at higher levels of aggregation.

In this context, we should point out that because entire acts, sections or parts are only seldom amended, this level of analysis is critical to empirical studies of the underlying dynamics of national regulation. The results of the institutional dynamic are usually expressed at the most detailed level of legislation – namely the text. In other words, if we record amendments at too high a level of aggregation, we run a greater risk of missing the underlying dynamic, notwithstanding the fact that it does most definitely exist. Finally, we should add that not all laws are structured in the same way. What is more, even within the same domain – such as higher education – the structure often changes over successive laws. Consistency can only be guaran-

teed at the most detailed level of regulation, as each law contains text at that level.

The source of national regulations – in our case, higher education acts – are the many editions of the *Staatsblad*, which publishes all formal laws, together with all accompanying changes. Many Dutch university libraries, including that of the University of Groningen, have a complete archive of *Staatsblad* editions. We prefer these hard-copy archives to the existing digital databases (available on overheid.nl or wetten.nl), which are managed by the Staatsuitgeverij, the government's publisher, but which are not historically complete.[8] The digital databases go back to about 1995, which is insufficient for a study of the long-term dynamics of regulation. Moreover, searching for information in the digital archives requires the design of algorithms based on core words. There is a high risk that an incomplete algorithm will lead to an incomplete overview of acts (and particularly of amendment acts). Finally, all digital texts still need to be converted to a word-processing program before the mother file can be used for empirical and statistical analyses.

The relevant domain

Before making a start on data collection, it is useful to present a rough outline of developments in the relevant legislative domain. Table 2 presents a historic survey of the principal acts relating to higher education.[9]

Table 2 Principal Dutch higher education acts

No.	Year	Act
01	1815	Royal Decree (King Willem I)
02	1876	First Higher Education Act (Minister Huizenga)
03	1905	Amendment Higher Education Act (Minister Kuyper)
04	1937	Amendment Higher Education Act
05	1947	Finance Higher Education Act (Minister Gielen)
06	1960	University Education Act
07	1970	University Governance Reform Act (Minister Veringa)
08	1975	University Education Act
09	1981	Two-phase Structure University Act (Minister Pais)
10	1985	University Education Act (WWO)
11	1985	Higher Vocational Training Act (WHBO)
12	1986	Implementing Act WWO
13	1986	Implementing Act WHBO
14	1986	Open University Act (WOU)
15	1992	The Higher Education and Research Act (WHW)

The first Dutch Education Act after the French period, dating from 1801, regulated primary education. Acts and regulations on education did exist before then, but we have little detailed information about them. The Dutch education system was shaped in the early 19th century,[10] with the first higher education act passed in 1815. The post-war period in any case saw the introduction of eight major acts for this sector, each one replacing in part its predecessors. Thus the most recent major act (the Higher Education and Research Act – or, using its Dutch acronym, the WHW – of

1992) replaced the comparatively recent acts of 1985 and 1986, together with several other regulations, including the Enabling Act regulating access to higher professional education (from 1985: *Staatsblad* 59) and the somewhat dated Royal Decree of 26 September 1851. The WHW is the focus of the present study because it remains at present the most recent, major formal higher education act.

The next step in data collection involved compiling a list of all amendments to the WHW and earlier acts. The main source was the WHW itself, as published in the *Staatsblad*. Each time an amendment is made, however minor, the act begins with a detailed summary of all previous amendments with reference to the editions of the *Staatsblad* in which they appeared. Each amendment act has a specific date on which it appeared in the *Staatsblad*. For our research, we took this date as the time when the act and its amendment took effect. Although in some cases the act itself provides additional regulations and dates in relation to its entry into force, this is less important for our purposes; publication in the *Staatsblad* completes the institutional process. Each amendment act gives the specific location of the amendment (a section, article, sub-article, paragraph, sub-paragraph, clause, sub-clause, or sentence), and details the substance of the amendment in question. We verified our list by consulting several other sources, in particular the Schuurmans and Jordens educational editions over subsequent years, together with the information on education legislation from educational specialists in Postma (1995), Zoontjens (1999) and Vermeulen (1999).

Measuring events

There are two ways of roughly determining the size of a national regulation stock: by the space it takes up (in square centimetres) or by the number of sentences, literally. As the correlation between these two measures is probably very high, it will generally make little difference which one is used. Although both methods are laborious, it is somewhat easier to count national regulations in terms of sentences than to measure them in terms of the space they take up. Moreover, there are two complicating factors to be considered. First, counting the sentences in the different editions of the *Staatsblad* presupposes a constant format in terms of type face, size, margins and line spacing.[11] A random sample for recent years shows this to be correct. Second, after acts are introduced in the *Staatsblad*, some have a new text placement that incorporates all amendments. This text placement forms the new point of reference for all subsequent amendments. The text placement itself, as with the original act, is of course not counted.

The results presented below relate to amendments to the WHW (1992), WOU (1984), WWO (1985) and WHBO (1985), together with the implementing legislation for the WWO (1986) and WHBO (1986). Please note that we did not count the first four main acts themselves – only their amendments. We did, however, count the implementation acts, together with amendments, because these imply an amendment to the original acts. We included every amendment – no matter how minor – to the above-mentioned acts. With the help of the relevant amendment act, each amendment was itself classified into one of three main groups: (i) the creation (birth) of a new rule, (ii) a change to an existing rule or (iii) a repeal (death) of an existing rule. In almost all instances, the amendment can be explicitly classified in one of these

ways. For the second group, we introduced a further classification, depending on the ultimate implications in terms of the scale of change. A replacement can have three outcomes: no size implications (e.g. an entire sentence is replaced by a new entire sentence of the same size); an increase in size (e.g. an entire article containing five sentences is replaced with a new article of ten sentences); or a reduction in size (e.g. a sub-clause containing five sentences is replaced with a new sub-clause of two sentences). We decided to record the change events in these sub-categories so that we could later make a definitive choice, depending on the question that needed answering and the type of analysis.

Empirical results

WHW (1992)

Our starting point was the 1992 WHW, which consists of 16 sections (some of which are sub-divided into titles). All articles in this act regulate the organization of the higher education sector in the broadest sense of the word. With this act, the Ministry of Education, Culture and Science sought to regulate almost all aspects, with section 7 as its core. All other sections relate to organization and funding, or ensure the technical implementation of the law itself. First of all, we established the size of the act by counting the number of articles and sentences. The results, presented in Table 3, function as a benchmark measure, among other things to establish the relationship between the number of articles and number of sentences.

Table 3 shows that the original WHW contained a total of 406 articles and 6000 sentences. The size of the individual sections varies enormously. Small sections making up less than 1 percent of the total (such as sections 3, 8 and 14, together with their schedules) stand alongside the three large sections (7, 9 and 16), which together account for more than 55 percent of all articles. The same picture emerges if we measure size in terms of the number of sentences. While at first glance there seems to be little difference between the two measures, subtle differences are discernible, which are set out in detail in Tables 4 and 5.

Table 4 presents an overview of the WHW, ranking the size of its sections in terms of the number of articles, whereas Table 5 does the same for the number of sentences. Indeed, section rankings based on the number of articles are not the same as rankings based on the number of sentences.

The creation of new regulations

The following sub-analysis relates to the 'birth' of new regulations in higher education. The count totals are listed in Table 6, which shows that the number of rule births in the period 1986–2004 fluctuated enormously from year to year. Although there does appear to be a cyclical trend – with fat years following lean ones – this pattern is not absolutely clear. We would require a longer period of time to establish that. In our period (1986–2004), a total of 803 new regulations on higher education were created, with a total size of 7829 sentences. The average size when enacted was 9.75 sentences per new regulation. Each year during this period, higher education had to contend, on average, with over 42 new regulations, averaging 412 sentences

Table 3 The size of WHW in articles and sentences

Chapter	Description	Number of articles	Size in %	Number of sentences	Size in %
Chapter 1	General provisions	18	4.43	265	4.42
Chapter 2	Plan and finance	14	3.45	214	3.57
Chapter 3	Consultation	3	0.74	22	0.37
Chapter 4	Personnel	7	1.72	104	1.73
Chapter 5	Supervision	5	1.23	55	0.92
Chapter 6	Curriculum	16	3.94	222	3.70
Chapter 7	Education	68	16.75	1284	21.40
Chapter 8	Interorganizational cooperation higher education institutes	1	0.25	18	0.30
Chapter 9	Governance and organization universities	85	20.94	1134	18.90
Chapter 10	Governance and organization higher education institutes	31	7.64	504	8.40
Chapter 11	Governance and organization open universities	29	7.14	431	7.18
Chapter 12	Governance and organization academic hospitals	23	5.67	216	3.60
Chapter 13	Governance and organization scientific research institutes	11	2.71	102	1.70
Chapter 14	Crown and appeal	1	0.25	44	0.73
Chapter 15	Deductions, finance, compensation and penalty clauses	7	1.72	36	0.60
Chapter 16	Temporary and implementation provisions	86	21.18	1197	19.95
Appendix		1	0.25	152	2.53
Total		406	100.00	6000	100.00

in length. There was not a single year that saw *no* new rule added to the existing stock of education regulations.

Amendments to or change of existing regulations

The next expression of the institutional rule dynamics concerns amendments to (i.e. changes of) the existing stock of rules. Table 7 distinguishes between amendments that had a neutral effect on size (i.e. number of sentences), and those that led to an increase or decrease.

Here, too, the picture is very diverse. Again, in no single year was there *no* amendment to an existing rule. In the period covered by the study, there were a total of 826 neutral amendments, 91 'positive' amendments (averaging 8.36 sentences), and 65 'negative' amendments (averaging 9.35 sentences). On balance, however, the size of the rule stock rose gradually as a consequence of the amendment process.

Table 4 The size of WHW ranked by articles

Chapter	Description	Number of articles	Size in %	Number of sentences	Size in %
Chapter 16	Temporary and implementation provisions	86	21.18	1197	19.95
Chapter 9	Governance and organization universities	85	20.94	1134	18.90
Chapter 7	Education	68	16.75	1284	21.40
Chapter 10	Governance and organization higher education institutes	31	7.64	504	8.40
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Chapter 5	Supervision	5	1.23	55	0.92
Chapter 3	Consultation	3	0.74	22	0.37
Chapter 8	Interorganizational cooperation higher education institutes	1	0.25	18	0.30
Chapter 14	Crown and appeal	1	0.25	44	0.73
Appendix		1	0.25	152	2.53
Total		406	100.00	6000	100.00

Repeals or deaths of existing rules

Finally, Table 8 presents an overview of the pattern of repeals and 'deaths' – a comparatively rare event.

Again, the pattern is a capricious one. During our observation period, a total of 336 higher education regulations were repealed, with an average size of 7.76 sentences – numbers much lower than in the case of rule birth.

The stock of national education regulations

The previous sections demonstrate that all rule events occurred: births, changes and deaths – hardly a surprising finding. More important is the question as to the net evolution of the rule stock. Are more rules created than are repealed, and what is the total impact on the volume of laws if amendments are included? In other words, is the stock of national regulations in the higher education domain declining – the aim of the policy to cut rules and regulations – or is it in fact increasing? Table 9 shows

Table 5 The size of WHW ranked by sentences

Chapter	Description	Number of articles	Size in %	Number of sentences	Size in %
Chapter 7	Education	68	16.75	1284	21.40
Chapter 16	Temporary and implementation provisions	86	21.18	1197	19.95
Chapter 9	Governance and organization universities	85	20.94	1134	18.90
Chapter 10	Governance and organization higher education institutes	31	7.64	504	8.40
Chapter 11	Governance and organization open universities	29	7.14	431	7.18
Chapter 1	General provisions	18	4.43	265	4.42
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Chapter 12	Governance and organization academic hospitals	23	5.67	216	3.60
Chapter 2	Plan and finance	14	3.45	214	3.57
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Chapter 14	Crown and appeal	1	0.25	44	0.73
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Chapter 3	Consultation	3	0.74	22	0.37
Chapter 8	Interorganizational cooperation higher education institutes	1	0.25	18	0.30
Total		406	100.00	6000	100.00

the net changes and the cumulative volume outcomes, taking the year 1986 as the benchmark.

The 'net' change is, of course, the balance of new regulation births plus the 'positive' amendments, minus the number of repeals and 'negative' amendments. The neutral amendments can be omitted as they do not affect the size of the rule stock. The cumulative stock in any year is the volume in the previous year corrected for net changes. The conclusion is clear: the rule stock rose sharply in the period from 1986 to 2004, including the years of the second Balkenende government that has as one of its priorities to cut back on regulations.[12] In terms of number of articles, it jumped from 141 to 493, and for number of sentences from 2172 to 5373. Based on the figures in Table 9, Figure 1 now shows the growth of the cumulative rule stock in terms of articles and sentences, with 1986 as the base year.

The quantity of higher education regulations has grown since the mid-1980s, only gradually at first, but explosively since the mid-1990s. In less than 20 years, the cumu-

Table 6 The birth of new rules in Dutch higher education

Year	Number	Size	Average size
1986	237	2503	10.56
1987	15	171	11.40
1988	18	110	6.11
1989	10	56	5.60
1990	35	146	4.17
1991	2	13	6.50
1992	21	320	15.24
1993	15	176	11.73
1994	72	445	6.18
1995	7	68	9.71
1996	33	448	13.58
1997	96	1193	12.43
1998	49	446	9.10
1999	20	298	14.90
2000	10	52	5.20
2001	7	19	2.71
2002	115	1070	9.30
2003	13	103	7.92
2004	28	192	6.86
Total	803	7829	9.75

lative stock has risen by almost 250 percent in terms of articles and almost 150 percent in terms of sentences. On the basis of our count, we therefore conclude that the rule stock has increased by 8 to 14 percent annually. This means that the number of formal laws on higher education has doubled in less than ten years. We should also point out that the growth rate base is rising sharply: the period required to double the quantity of such legislation has decreased considerably over time.

An ecology of law

As stated already, national rules are not often suspended. Although the rules are frequently changed, this does not impact on the national stock of rules. Hence, a thorough comprehension of the underlying forces that foster rule birth is crucially important to the understanding of a nation's rule-producing 'machinery'. Below, we will analyse the three underlying causal processes – i.e. rule density, rule-makers and affinity of rule-makers – that we hypothesize to have determined the birth of national rules in the domain of higher education in the Netherlands (1986–2004).

We measure the dependent variable, rule birth, as a combination of the event and the size of the event. We calculate rule density in each year as a result of 'net' changes to regulations. The 'net' change is the balance of new regulation births plus the 'positive' amendments, minus the number of repeals and 'negative' amendments. The neutral amendments can be omitted, as they do not affect rule density.

For the Dutch Ministry of Education[13] we counted the number of civil servants in

Table 7 Amendments to existing rules in Dutch higher education

	Neutral		Increase			Decrease		
Year	Number	Size	Number	Size	Average size	Number	Size	Average size
1986	203	0	47	318	6.77	15	119	7.93
1987	9	0	5	30	6.00	0	0	0
1988	17	0	2	12	6.00	0	0	0
1989	14	0	0	0	0.00	0	0	0
1990	18	0	6	70	11.67	16	152	9.50
1991	4	0	0	0	0.00	0	0	0
1992	66	0	4	27	6.75	6	55	9.17
1993	59	0	2	18	9.00	0	0	0
1994	39	0	1	3	3.00	0	0	0
1995	12	0	0	0	0.00	0	0	0
1996	35	0	11	157	14.27	16	207	12.94
1997	42	0	0	0	0.00	3	35	11.67
1998	47	0	4	67	16.75	1	7	7.00
1999	34	0	0	0	0.00	0	0	0
2000	21	0	1	11	11.00	5	25	5.00
2001	77	0	0	0	0.00	0	0	0
2002	93	0	8	48	6.00	3	8	2.67
2003	13	0	0	0	0.00	0	0	0
2004	23	0	0	0	0.00	0	0	0
Total	826	0	91	761	8.36	65	608	9.35

the observation period. For this, we used different sources of information: that is, Knippenberg and van der Ham (1994), the annual financial reports from the Ministry of Education published by the Second Chamber, and recent estimates of the number of civil servants by the Dutch Ministry of Internal Affairs. Since only a very few of these years have no data, we were able to interpolate those values from the surrounding years. We have measured rule-makers as the logarithm of the number of civil servants.

The demographic characteristic concerning the 'fit' of the Minister of Education to the rule-making domain derives from the curricula vitae of the Dutch Ministers of Education. These curricula vitae are all stored and maintained in the Dutch National Parliamentary Archive Institute. Additionally, many of these ministers have biographies that describe their personal and professional life in great detail. We have measured 'fit' as a percentage that expresses the amount of experience in education over the entire career that a minister has had prior to becoming minister. As many of the ministers are recruited from the field, most of them already have a given level of experience in higher education, for example, due to a board position at a university. In a few instances, a minister did not have any relevant experience. In such a case, the fit grows from zero in the first year to full-fit in the third year. The reason is that a

Table 8 Repeals of existing rules in Dutch higher education

Year	Number	Size	Average size
1986	128	530	4.14
1987	3	49	16.33
1988	11	27	2.45
1989	2	4	2.00
1990	13	152	11.69
1991	3	5	1.67
1992	38	116	3.05
1993	5	5	1.00
1994	13	66	5.08
1995	5	5	1.00
1996	11	125	11.36
1997	23	1091	47.43
1998	12	74	6.17
1999	4	11	2.75
2000	11	63	5.73
2001	9	53	5.89
2002	36	184	5.11
2003	4	12	3.00
2004	5	37	7.40
Total	336	2609	7.76

Table 9 The stock of national rules in Dutch higher education

	In number of articles		In number of sentences	
Year	Net mutation	Cumulative stock	Net mutation	Cumulative stock
1986	141	141	2172	2172
1987	17	158	152	2324
1988	9	167	95	2419
1989	8	175	52	2471
1990	12	187	–88	2383
1991	–1	186	8	2391
1992	–19	167	176	2567
1993	12	179	189	2756
1994	60	239	382	3138
1995	2	241	63	3201
1996	17	258	273	3474
1997	70	328	67	3541
1998	40	368	432	3973
1999	16	384	287	4260
2000	–5	379	–25	4235
2001	–2	377	–34	4201
2002	84	461	926	5127
2003	9	470	91	5218
2004	23	493	155	5373

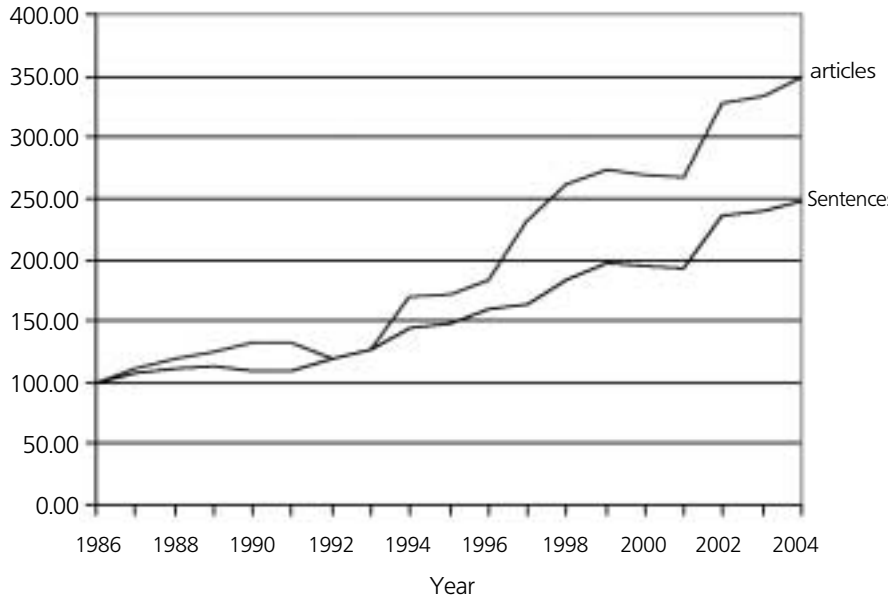

Figure 1 The growth of national rules in Dutch higher education (1986 = 100)

minister is usually highly educated and therefore will quickly learn about the specific domain at the department. In our observation period, due to elections and turnover of cabinets, different ministers headed the Ministry of Education. These ministers usually changed positions somewhere in the middle of a calendar year. To obtain an annual estimate for a 'representative' minister in a given year with a change of ministers, we calculated tenure in terms of the number of days (including a caretaker period), and used this as a weight for the fit of ministers.

We apply event-history techniques that estimate the significance or non-significance of the hypothesized determinants of the birth of national rules (Blossfeld and Rohwer, 1995). We chose 'year' as the time interval, which resulted in 19 observations. Since the dependent variable is continuous, we can apply the usual Maximum Likelihood estimation procedure implemented in E-views. The descriptive statistics are provided in Table 10, and the regression results in Table 11.

Table 10 Descriptive statistics[a]

	Mean	SD	1	2	3	4
Rule birth	49.10	136.73	1.00			
Rule density	108.70	774.81	0.30**	1.00		
Civil servants (log)	8.03	0.09	0.17*	–0.10	1.00	
Minister fit	94.80	9.90	0.23*	–0.69**	–0.67**	1.00

[a] * $p < .05$, and ** $p < .01$. The figures for rule birth and rule density are divided by 1000 for presentation purposes only.

Table 11 Regression results[a]

	Rule birth	
Constant	2.62	(1.86)
Rule density	0.08**	(0.03)
Civil servants	–0.37	(0.23)
Minister fit	0.29**	(0.10)
Adjusted R^2	0.43	

[a] Standard errors in brackets; * $p < .05$, and ** $p < .01$.

Table 10 shows that all values of the correlation coefficients are below 0.80, which is the common threshold value for multicollinearity. We have also inspected our sample for autocorrelation and heteroscedasticity, revealing that these issues did not arise. The adjusted R^2 indicator of 0.43 is satisfactory; it ensures that a substantial part of the variation in rule birth is explained by the three covariates. The estimated parameter for rule density is positive, as expected, and highly significant. Our Hypothesis 1, therefore, receives support. The estimated parameter for civil servants is negative, but not significant. We need to reject our Hypothesis 2, and conclude that the 'stock' of civil servants does not determine the introduction of new rules in Dutch higher education. One explanation for this may be that the during our observation period the number of civil servants at the Ministry of Education has been fairly stable. On average, it increased by 0.86 percent per year. The analysis supports our Hypothesis 3: the fit of the minister to the domain of higher education significantly increases rule births for higher education. To summarize, the empirical results provided support for our explanation of national rule births. The significant results indicate that the effect of rule density is stronger than the effect of minister fit. This confirms our suggestion that the rules-breed-rules mechanism is among the strongest causal forces that determine the birth of new national rules.

Conclusion

Conventional wisdom concerning national rules in modern Western societies proclaims that there are too many rules and that their number is growing exponentially. This may create an ever-growing bureaucratic system that may impose unnecessary and abundant costs on citizens and organizations (cf. Olson, 1996). Surprisingly, however, quantitative assessments of the evolution of national rules have hardly ever been conducted, leaving many questions ill-understood or unaddressed. Most fundamentally, why are national rules created in the first place? In the context of the evolution of national law, rule birth is one of the most important events, particularly when birth rates exceed repeal rates.

In this article, we have shed light on the dynamics of the national regulation of higher education in the Netherlands. We have shown that ever more regulations are being added to the existing stock over ever shorter time periods (cf. de Jong and Herweijer, 2004). Within a period of 10 years, regulations on higher education have doubled. If the current trend continues, the doubling time will be reduced consider-

ably in the near future. To a certain extent, our results confirm the perceptions in the educational field and of the wider public, with the profusion of regulations in all educational sectors reflecting the commonly held view that governments suffer from regulation mania. Our study is one of the first to have empirically tested this general hypothesis.

However, it is not so much the absolute number of regulations, but rather the rate of *growth* of these regulations, that surpasses our expectations. This growth rate is not in line with the size of the sector. During this period, the number of students increased by 34 percent and total government expenditures for higher education by 76 percent (in 2000 constant prices). Hence, the growth rate of higher education rules – 250 percent in terms of articles and 150 percent in terms of sentences – far exceeds the growth rate for the size of the higher education sector. This article offers different explanations for this trend. Our point of departure is that ecological processes together with demographic characteristics of rule-makers determine the introduction of new rules. We expect that both endogenous forces inherent in any population – and thus also within classes of national rules – as well as exogenous forces (hence, specific characteristics of rule-makers) determine rule birth. This view provides the added value of this study for the existing stock of knowledge about national bureaucracy (e.g. Watson, 1985; La Torre, 1997; de Vries, 2000, 2002). Additionally, we developed a method of counting which – in line with our definition of a national rule – has allowed the construction of time series for rule births, changes and repeals. By doing so, we complement recent studies in our research domain that offer cross-sectional evidence or estimates for a limited number of years for national rules (Page, 1998; Bovens and Yesilkagit, 2004).

On the basis of our data we have estimated a (simple) model that predicts linear relationships between different covariates and rule birth. Overall, our empirical results support our theoretical framework. The stock of rules expands due to its powerful internal dynamics: that is, rules create rules. However, this is not true for the 'stock' of civil servants. We have not been able to provide evidence for the hypothesis that the proportion of new rules aligns with the proportion of rule-makers. One explanation for this might be that the number of civil servants at the Ministry of Education during our period of observation has been fairly stable. The results do indicate that the fit of the minister in terms of her or his educational experience career prior to becoming a minister is important: they become more productive if their affinity with the substance of higher education rules is higher.

There are several policy implications that can be derived from this study, particularly for governments such as the Dutch one whose explicit intention is to reduce the national regulation stock. There are different possibilities for keeping the ecological processes in check. Limiting the introduction of new rules and only amending existing rules to new circumstances would be the most efficient way to reduce the birth rate over a number of years. The assignment of an explicit date for the repeal of a new rule is a similar policy opportunity. This pre-specified end-date for a new rule circumvents the fact that existing rules are almost never annulled. Once rules come into existence they are there to stay. Another opportunity would be that for every new rule that is introduced, a number of existing rules of similar size should be repealed. A related policy consideration would be the introduction of a quota system

– i.e. a fixed number of new rules per ministry per year. Such a system could be complemented with a price mechanism. Together, this may introduce a market – or, in the case of more than one ministry, markets – of national rules in which the system of quota and prices may equalize the demand and supply for national rules.

We envision two opportunities for future research, which may help to overcome some of the limitations in our study. First, because of the small size of our sample (that is, 19 observations) we included a limited number of variables in our regression model. These offer a stepping stone for a full-blown demographic ecology of national rules. Adding to this article's benchmark specification, many more characteristics and theoretical foundations can and need to be considered in future work. Studies in the field of parliamentary activism offer helpful insights for this because these studies offer a detailed overview of both information sources as well as decision-making processes for national legislation (Andeweg and Irwin, 2005; Andeweg and Thomassen, 2005). For example, it has been argued that since the 1980s the members of parliament have become much more active – for example, the number of amendments to bills and committees sharply increased – among other things due to better education and payments (resulting in professional politicians) as well as a more volatile political climate (Andeweg, 1992). Taking this into account, future models may include demographic features of cabinets (team composition features such as the number of cabinet parties; age spread and educational background of ministers; power position of cabinets and election events) and other key decision-makers in the legislative process (such as the chairs of the various educational advisory committees per political party and the many advisory boards that are involved in the legislative process). Of course, all these suggestions require that the window of observation is expanded.

Second, the collection of new data for other rule domains or from other European countries, such as Germany, France or the United Kingdom, would enable the generalizability of our findings to be verified (cf. Pollitt, 2006). Europe offers a natural laboratory for empirical research in the ecology of national rule evolution, since different European countries have produced different evolutionary trajectories in different institutional settings. The collection of new data from other domains allows cross-population dynamics to be tested. For example, it might be that the population of Dutch rules for higher education is a reaction to the dynamics of rules for elementary education.

Notes

1 The authors thank two anonymous reviewers and the Editor of the *International Review of Administrative Sciences* for their helpful comments and suggestions on an earlier version of this article. All remaining errors are ours.

2 To some extent our study relates to the concept of 'red tape' because we estimate and explain the rule production for a particular domain. However, 'red tape' is particularly concerned with unnecessary or even pathological rules (Bozeman, 1993). We neither make a qualitative nor a quantitative assessment of the impact of education rules on higher education institutes (cf. Donker van Heel et al., 2004). Thus, strictly speaking, whether or not national rules really turn into red tape depends on the type of rules, on the burdens they infer and on whether they are enforced at all.

3 On the one hand, the Dutch Court of Audit (Algemene Rekenkamer, 2004) claims that today over half of Dutch regulation originates from Brussels. Their source is an unsubstantiated percentage in a circular from the Government Finance Inspectorate from 2002. De Jong and Herweijer (2004), on the other hand, estimate that 16 percent at most of new national rules and regulations are prompted by the EU. This finding is supported by research in Denmark, Austria and the United Kingdom (Page, 1998; Blom-Hansen and Christensen, 2003; Bovens and Yesilkagit, 2004). With regard to the administrative burden, it is claimed that 40 percent comes from outside the Netherlands (Tang and Verweij, 2004). According to the Dutch Ministry of Finance (see www.administratievelasten.nl), the 'administrative burden' is the cost for business of complying with the requirement, under government rules and regulations, to provide information. Given this definition of the burden of regulation, the 'administrative burden' constitutes only part of the costs related to regulation. It does not, for instance, include the costs borne by citizens as consumers, employees, investors or students.

4 The word 'productivity' is used in a non-economic sense here: departments do indeed 'produce' many rules, but this productivity may not have any added societal value.

5 For the sake of variety, we use terms such as laws, regulations and rules interchangeably. Strictly speaking, though, this study focuses on formal laws only.

6 The Dutch Ministry of Education, Culture and Science is well known for its excessive production of ministerial guidelines and circulars. However, no database exists that documents these rules. In fact, the ministry does not have any procedures to document or store any class of rules (cf. Donker van Heel et al., 2004), except for formal laws that are required to be published in the *Staatsblad*.

7 For an overview of the Dutch legislative process for formal education acts, we refer to Postma (1995).

8 The studies of de Jong and Herweijer (2004), Page (1998) and Bovens and Yesilgakit (2005) use electronic data files or web-enabled databases as their most important sources of information. These studies present cross-sectional estimates or data for a limited number of years. In some instances, they interpolate the data to obtain estimated time series of national rules. The present study denies neither the importance nor the validity of these research methods, but takes a complementary perspective. To be able to address the underlying causal mechanisms in the evolution of national rules, we attempt to construct actual rather than estimated time series. This implies that we need to count the actual (that is, non-interpolated) number of rules in each year in our observation period. For that reason, we prefer to use hard-copy data sources that offer the opportunity to do so.

9 Strictly speaking, our count relates to acts in the area of higher education and academic research. For the sake of brevity, however, we refer each time only to higher education.

10 Sketching the history of the Dutch education system is beyond the scope of this article (for this, see Boekholt and de Booy, 1987; Dodde, 1993).

11 Of course, this applies to the measure in terms of space as well.

12 Given the enthusiasm of Mark Rutte, the former State Secretary for Education, for 'reform', the end is not yet in sight. We can expect, for instance, that his voucher scheme for higher education will be accompanied by the required legislative force. Here, the idea is that students receive a pre-fixed batch of vouchers – worth the tuition fees equivalent to, say, four years of full-time course work in higher education – that they can spend whenever and wherever they like, so promoting competition among higher education institutes.

13 We leave out the 'Culture and Science' extension, for the sake of brevity.

14 'Mammoet' is the Dutch acronym for a major reform of the secondary school system in the early 1970s.

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