

Institutional isomorphism and the creation of the unified national system of higher education in Australia: An empirical analysis

Authors¹

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1. Introduction

In recent decades major university systems around the world have reconfigured in response to a multiplicity of external pressures and government policy changes. While there has been an almost universal shift toward granting universities greater institutional autonomy (Marginson & Considine 2000; Bleiklie & Kogan 2007; Enders, Boer & Weyer 2013), it has been matched with increased accountability requirements and a stronger emphasis on competitive and performance-based funding arrangements, particularly for research (see, e.g., Geuna & Martin 2003; Hicks 2013). At the same time, universities in many countries have responded to strained finances and stagnating public funds through leveraging the growing international student market as an alternative source of revenue.

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Combined, these pressures have meant transformation of internal university governance and organization, as well as the ways in which institutions interact with their external environment. Higher education researchers in recent years have sought to examine the nature of these changes to identify and analyse patterns of institutional response. Building on the ‘institutional isomorphism’ thesis presented in a classic paper by sociologists DiMaggio and Powell (1983), previous research has argued that increasing external pressures, combined with uncertain environmental variables have, in some instances, driven universities to show broadly converging characteristics in terms of their organizational structures (e.g. van Vaught 1996; Marginson & Considine 2000; Stensaker & Norgard 2001). This has occurred despite most governments around the world seeking greater diversity in provider characteristics and mission within their higher education systems.

A particularly interesting case for applying and empirically testing the institutional isomorphism thesis is the Australian higher education system. This system went through a period of turbulent change in the late 1980s following radical policy reforms enacted by the Australian Commonwealth government (see section 2). These changes, known colloquially as the ‘Dawkins reforms’ after the higher education minister at the time John Dawkins, constitute a salient example of a centrally coordinated, radical policy reform enacted in a liberal democracy over only a few years – but leading to far-reaching structural reorganisation on a national scale with consequences still clearly evident 25 years on.

The immediate effects and long term impacts of these reforms have been comprehensively discussed in the literature (Marginson 1999; Marginson & Considine 2000; Croucher et al. 2013). Yet there remains to date a lack of comprehensive empirical studies scrutinizing in detail the organizational changes that took place across the entire Australian higher education system in the wake of the Dawkins reforms, and the effects these had on diversity in research and teaching at Australian universities (see also Marginson 1999; 18). Such empirical analysis would put the institutional isomorphism thesis to a more robust test.

Addressing this lacuna, this paper empirically investigates organizational change across all Australian universities in the wake of the Dawkins reforms. It aims to ascertain whether the available data supports the thesis that subsequent to these changes, Australian universities showed convergence in their organizational characteristics. Drawing on a wide range of university and government data, this paper seeks to do this through comprehensively tracking and analysing, a) changes in faculties and departments; and b) changes in the numbers of academic staff and students in different academic organizational groupings, across the entire, public Australian university system.

Despite some limitations in the available data, this paper finds that there indeed was clear and significant convergence in terms of formal organizational structures and student and staff numbers in the majority of academic fields taught and researched at Australian universities. Moreover, our analysis reveals that this convergence was clearly evident within the first two years of the new system’s operation; a period where a significant number of new universities were established in Australia.

Our discussion is structured as follows. In section 2 we provide important background information on the Australian higher education policy reforms of the late 1980s. Following this in section 3, we introduce the key tenets of the institutional isomorphism thesis. In sections 4-7 we present empirical analyses of organizational change at Australian universities and a summary of our major findings. In

the final section we conclude that the Australian case lends clear empirical support to the isomorphism thesis, yet propose that further research is called for that more clearly distinguishes between the various dimensions of institutional isomorphic change, and which supplements the system-level analysis presented here through more close-up institutional case studies.

2. The Dawkins higher education policy reforms and the creation of the Unified National System of higher education in Australia

Throughout the 1980s the public sector in Australia was subject to broad calls to become more efficient and accountable in expenditure and outcomes. This was a time of shifting national and international economic conditions and calls for individuals to pay more for services such as health and education, rather than governments providing them solely from public revenue. In this context, the Australian government sought transformation in the nature of higher education provision and funding, through the creation of the Unified National System (UNS) of higher education in 1988-89. This brought together the two major types of higher education providers into one single system. Prior to 1989 the higher education system had two dominant forms of institution, one being the 19 universities, another being the 46 Colleges of Advanced Education (CAE), with the remaining students being in 24 different technical and further education (TAFE) colleges or a small number of other higher education institutions (Dawkins 1988).

The UNS consolidated these two types of institutions so that higher education became almost exclusively the domain of just one type of institution, the Australian university. The program of changes set out in a government White Paper, *Higher education: a policy statement* (Dawkins 1988), were far reaching, and changed the character of all Australian institutions of tertiary education, except those located in the technical and further education (TAFE) system which remained under state governments' control.

Through the creation of the UNS then Education Minister, John Dawkins turned an elite university system into a mass higher education system. This was instituted alongside a series of other important changes. These include turning university vice-chancellors into corporate leaders, the creation of a research funding system that more strongly emphasised competitive processes, and expectations that all academics in all universities would be both researchers and teachers, whereas many in the CAEs and some in the universities had previously not undertaken research at all (Larkins & Croucher 2013).

All these changes were and remain controversial, but they have had a lasting impact (e.g. see Meek 1991; Croucher et al 2013; Forsyth 2014). Many of the current policy settings and policy debates in Australia descend from the system that Minister Dawkins put in place (Croucher et al 2013, 10). Rarely does such a major set of public policy changes, the reorientation of a large sector of the economy, and a shift in work practices, cultures and public expectation, hinge on such a co-ordinated set of government initiated actions.

Following the creation of the UNS there was a substantial expansion in the number of students, matching a language of growing access and participation. This sat alongside an emphasis on fields of study that were claimed to be crucial to economic growth, such as engineering, information science and business studies (Marginson & Marshman 2013). The formation of the Australian Research Council meant research funds could likewise be directed toward national research priorities (Larkins 2011; Larkins & Croucher 2013). University governance changed more slowly, but over time governing bodies shrank, many of them losing representatives of staff, students and alumni. Vice-

chancellors became in effect chief executive officers, responsible for the running and performance of their institutions (Marginson & Marshman 2013).

Importantly for questions examined in this paper, an explicit goal of the higher education reforms and the creation of the UNS was diversity in university mission, character and profile. This was articulated clearly in the key policy documents outlining the changes, known as the Green and White Papers. The White Paper, in acknowledging that “our institutions have differing strengths and characteristics” goes on to state that:

“Individual students have a wide range of aspirations and needs, for which the system must provide. Institutions should adapt their offerings to the needs of particular student groups” (Dawkins 1988, 7).

Similarly, it notes that

“there are significant differences in educational requirements across particular States and regions. Institutions should be sensitive to local as well as to broader national needs.” (Dawkins 1988, 7)

As we will elaborate in the following section, previous research has claimed that this diversity did not emerge (Marginson 1999; Marginson & Considine 2000), and that ultimately the higher education policy reforms resulted in greater uniformity across the system.

3. Institutional isomorphism in higher education

It is commonly stated the environment in which universities operate has become increasingly uncertain due to a host of political, economic and technological pressures challenging the traditional role and institutional legitimacy of universities. The literature shows two common accounts of how universities have responded to these pressures and uncertainties, and these can be broadly labelled the convergence and divergence theses (e.g. see Vaira 2004). While the former emphasizes homogenizing, institutional isomorphic tendencies, the latter stresses processes of differentiation between institutions.

The majority of pertinent accounts investigating institutional change in higher education systems hold that universities, faced with an increasingly complex, competitive and uncertain operating environment, have mainly resorted to the isomorphic strategy of mimicking fellow universities which are perceived to have the highest degree of legitimacy among peer institutions.² As a result, the argument goes, conformity among universities and their organizational structures has intensified.

One major point of reference for analyses emphasizing convergence tendencies is the sociological account of institutional isomorphism outlined by DiMaggio and Powell (1983). Broadly speaking, DiMaggio and Powell define institutional isomorphic change as a process of homogenization, as a result of which organisations operating within the same environment and under the similar conditions, come to resemble one another (1983, 148-150). DiMaggio and Powell’s account primarily focuses on converge dynamics as they become manifest on the level of formal organizational structures. More recent accounts have sought to complement this picture, suggesting that within complex environments, dominant ‘institutional logics’ could result both in convergence or divergence dynamics at the same time (see Thornton & Ocasio 2012).

² The isomorphism thesis was first drawn upon to conceptualize developments in Australian higher education by Piper (1994) and by van Vaught (1996). To date the most comprehensive study of isomorphic change in higher education is Marginson and Considine (2000).

DiMaggio and Powell identify three specific mechanisms of isomorphic change: *Coercive* isomorphism, which has its base in external pressures “exerted on organizations by other organizations upon which they are dependant” (1983, 150); *mimetic* isomorphism, which has its roots in environmental uncertainties that drives organizations to emulate other, arguably more legitimate and successful organizations (150-152), and *normative* isomorphism, which results mainly from processes of professionalization and the associated pressures (152-153).

In the more recent higher education literature, a particular emphasis has been placed on mimetic isomorphic change. This also includes the most pertinent account of isomorphic change in Australian higher education presented by Marginson and Considine in 2000.

4. Current insights into institutional isomorphism of Australian universities

In their account of governance and organizational change in Australian higher education in the 1990s, Considine and Marginson claim that isomorphic tendencies emerged and intensified following the creation of the UNS. In their operationalization of DiMaggio and Powell’s work, Marginson and Considine (2000, 184) particularly emphasize *mimetic* forms of isomorphism as the primary risk-minimizing adaptation strategy of the newer and less prestigious Australian universities facing environmental uncertainties due to the Dawkins’ changes.

Marginson and Considine (2000) see these apparent mimetic-isomorphic tendencies as being rooted in three broader, inter-related developments impacting upon universities. The first development is the emergence of (quasi-)markets in Australian higher education forcing universities to strategically position themselves and to compete for students and resources. The second development is “a discernible decline” in the power of the academic profession in internal university governance (Marginson and Considine 2000, 10; also 164-174). The third development is the proliferation of ‘one-size-fits-all’ performance-based funding mechanisms driving universities toward increased conformity (219-220; see also Marginson & Marshman 2013).

This account of isomorphic change among Australian universities deservedly has become the major reference point for any treatment of governance and organizational change following the creation of the UNS. Yet at the same time, this account also continues to raise a number of questions as to its potential limitations both conceptually and empirically.

In conceptual terms, the particular emphasis Marginson and Considine place on mimetic isomorphism would benefit from further exploration. Apparently, some of the mechanisms of isomorphic change in Australian higher education fall, not under the rubric of mimetic but that of coercive isomorphism, having their source in pressures exerted by government agencies on whose funding the universities depend to a significant extent. Similarly, one may wonder about the absence of any explicit consideration of normative mechanisms of isomorphic change in this account is justified. We will return to these points in the final section of this paper.

Marginson and Considine (2000) base their observations on case studies that are informed by a substantive body of interview data. Understanding of isomorphic change in Australian higher education would benefit from systematic empirical analysis of changes in formal organizational structures, as well as changes in staffing numbers and student enrolments covering all universities. Addressing this particular shortcoming, in the following sections we scrutinize precisely these three specific sets of data – data concerning formal organizational structures, staffing and enrolment at all

Australian universities – to get a clearer idea whether these data lend support to the isomorphism thesis or not.

5. Research design

To test the institutional isomorphism thesis, we examine broader changes in the formal organizational structures of academic units, the number and makeup of the student enrolments, as well as changes to the number and makeup of academic teaching and researching staff across the entire Australian university system, starting from just prior to the Dawkins reforms in 1987 through to 1991 when many of the major features of the UNS had been implemented.³ The years 1987 to 1991 have been chosen because the volume of system-level data consulted necessitates narrowing the scope. Furthermore, this period is of particular interest as it reveals the immediate impact of the Dawkins reforms, and as it is a period that saw the establishment of 12 new universities in Australia. Confining discussion to this period, starting in the year directly before the changes (1987) for a baseline and ending in the year where much of the change had been enacted (1991), provides the most analytical ‘payoff’.

Our major unit of analysis in this paper is the Academic Organizational Unit (AOU). In the most general sense, the AOU refers to the structure through which the core academic activities (i.e., research and teaching) at universities are organizationally represented and delineated from one another. Our analysis in this paper approaches the AOU from a two-fold angle.

First, in the analysis of student and staffing numbers, we follow the system of classification of AOUs against which universities report to government during the period.⁴ The advantage of this classification system and of the associated data is that it provides insight into the actual teaching and research emphases of universities, as distinct from the academic offerings that are formally maintained mainly for reputational purposes (see Meyer & Rowan 1977).

Second, our analysis of formal organizational structures is based upon the AOU as they are classified by the universities themselves in their annual reports. The advantage of this data is that it sheds light on the formal structures of AOUs at Australian universities to a level of specificity that the government data does not.

Data from government reports and annual reports was collected for all Australian universities that existed prior to 1987 or which were established over the period 1987 through to 1991 for each of the years 1987, 1989 and 1991 respectively.

For the purposes of the study, the 31 universities investigated were divided into three groupings, based on common characteristics. The first group comprised the eight Australian universities that were both research intensive and established prior to 1960 (henceforth labelled the ‘established research universities’ group). The second group was made up of the eleven other universities established prior to the Dawkins changes (henceforth labelled the ‘post-1960 universities’ group). Both the University of Tasmania (established in 1890) and the University of New England (1954)

³ This study includes in its analysis all those higher education institutions that had the formal status of universities at some stage throughout this period.

⁴ AOU as defined by the government was a classification that clustered disciplines which were deemed to have likeness in terms of the subject matter of units of study into eleven broader groupings. One limitation of the governmental AOU classification is that it combines several disciplines – law, business and economics, for example – which are often grouped differently in other contexts.

were included in this group rather than the first group due to their lesser degree of research intensity. The final group (henceforth referred to as ‘post-1987 universities’ group) includes all universities which were established post-Dawkins either by converting existing CAEs into universities or merging several higher education entities to form a new university. In line with previous accounts (Moodie 2013), we included Curtin University (established in 1987) in this third group.

Powerful but simple statistical measures were employed to show relative variation in student and staff across the sector before and immediately after the changes (with 1987 used as the base year for students, but 1988 for staff, due to the limitations in available data). A useful measure to compare the uniformity of the system across time is the *coefficient of variation* (CV) (Hanneman et al 2010, 134). This measure provides a clear means to analyze how similar groupings of universities looked at a broad academic organizational level prior to and immediately after the Dawkins reforms (see Moodie 2013).

The CV is the ratio of the standard deviation of a population to the mean of the population.⁵ The significant advantage of using CV is that it allows relative comparison in staff and student numbers despite growth over the period and the establishment of 12 new universities from former CAEs and other higher education institutions, as well as the merger of many smaller institutions into the larger existing universities.

Using the method outlined here, the following sections examine changing organizational structures, student and staff numbers at all Australian universities during the period of 1987 through to 1991.

6. Change in the organisation of academic units 1987 to 1991

In terms of the analysis of organizational change taken place at Australian public universities over the period of 1987-1991, we scrutinized changes both in the broader *vertical* and *horizontal* differentiation of the academic units of organization (AOUs) as officially referred to by the universities themselves in their annual reports. At Australian universities, these AOUs are variously labelled divisions, faculties, schools, or departments. In terms of coverage, the annual reports contained clear data on the broader vertical and horizontal organisation of AOUs at Australian universities for the years 1987, 1989 and 1991 for approximately 93% and respectively 92% of all possible data points.

6.1 Vertical differentiation at Australian universities 1987-1991:

Analysis of vertical differentiation patterns in formal AOUs at Australian universities shows a considerable degree of stability over the period investigated, with some notable exceptions (see also section 9). The data also showed that there were two major types of the vertical organization of AOUs prevalent throughout the period investigated – although it cannot tell us to what extent the difference between these two types corresponds to actual differences in organizational practices and operations. The two types are, first, a *hierarchical two-level structure* with more comprehensive AOUs at the top, and more specialized AOUs clustered under these; and second, a *flat, one-level structure* in which the academic and organizational function of both levels was apparently collapsed into one. In addition to

⁵ The formula for CV is as follows:

$$CV = \left(\frac{s}{\bar{x}} \right) \times 100$$

Where s is the stand deviation and \bar{x} is the mean. A uniform population will indicate a low ratio where the standard deviation is significantly less than the mean. In contrast, where the ratio is high, and the standard deviation is much greater than the mean, the population is less uniform and more diverse (Hanneman et al 2010).

these, there were a small number of universities where the vertical organization of academic units exhibited idiosyncratic features that made it impossible to clearly subsume them under these two dominant types. Over the period of 1987 to 1991, the hierarchical two-level structure comprising faculties and departments was by far the most common form of the vertical organization of AOU at Australian universities.

In 1987, out of the then existing 19 public universities, 13 had such a two-level structure, including all eight established research universities.⁶ In the same year, a further four universities clearly exhibited a flat, one-level structure. All of these universities – Macquarie, Flinders, Murdoch and Deakin – were established in the 1960s or 1970s, and their flat structure signals a deliberate departure from the traditional, more hierarchical and specialized organization of academic units prevalent among the established research universities. Finally, two universities exhibited idiosyncratic forms of vertical organization, one being the Australian National University, the other Griffith University.

The picture in 1989 is little different from that in 1987. Out of the then existing 23 universities, the majority (16) had a two-level vertical structure: the same universities as in 1987 plus Griffith University plus three recently established universities: Curtin University, University of Technology Sydney (UTS), and Queensland University of Technology. Four universities had a flat, one-level organizational structure. Two universities exhibited more idiosyncratic structures in terms of their vertical organization. No clear data could be obtained for one university for this year (Northern Territory University).

Finally, in 1991, after the creation of an additional eight public universities, out the 31 existing public universities 20 had adopted the two-level organizational model. Five universities had adopted a flat organizational structure, and the same two universities as in 1989 continued to have more idiosyncratic vertical arrangements. No clear data could be obtained for four universities.

6.2 Horizontal differentiation at Australian universities 1987-1991:

In our analysis of the horizontal differentiation of academic organizational units, we investigate the number of comprehensive AOU (be they labelled faculties, divisions or schools) existing at Australian universities in each of the years 1987, 1989 and 1991, aggregating these both at the overall system-level as well as at the level of the three groups of universities specified earlier. This analysis allows discernment of salient developments in specific discipline groupings both for the whole system and within university groupings.⁷

All Australian universities 1987-1991

Table: Comprehensive AOU, all universities

	1987	1989	1991
Number of universities:	19	23	31
Average number of AOU	8.89	8.6	9.04
Minimum:	2	4	4
Maximum:	14	13	16

⁶ ANU was a borderline case due to the complex research school structure alongside the faculties.

⁷ The annual reports' data about specific departments existing at Australian universities in 1987, 1989 and 1991 turned out to be too patchy to use departments as a unit of analysis for systematically tracking change across the entire system – but was still useful for identifying trends concerning particular fields of study.

Standard Deviation	3.01	2.74	3.66
Coefficient of Variation (CV)	34	32	40

The average number of comprehensive AOU's officially existing at all public Australian universities over the period of 1987-1991 remained remarkably stable (at around nine), only changing slightly over the years. The CV for these AOU's likewise only changed marginally, increasing from 34 in 1987 to 40 in 1991, indicating only a minimal increase in diversity. Patterns in the formal structure of the AOU's represented at its institutions remained consistent, despite the considerable growth in their number over this period.

Group of established research universities

Table: Comprehensive AOU's, established research universities

	1987	1989	1991
Number of universities:	8	8	8
Average number of AOU's:	11.25	11	12.5
Minimum:	7	7	10
Maximum:	14	13	16
Standard Deviation	2.09	1.94	2.12
Coefficient of Variation (CV)	19	18	17

The data suggests a considerable stability among the established research universities over the years 1987-1991, with the average number of comprehensive AOU's only increasing slightly, and with the CV remaining virtually unchanged over the period.⁸ Moreover, this group's CV remained relatively low over the period being examined (around 18), and remained considerably lower than that of the other two groups of universities investigated.

Closer scrutiny reveals remarkable similarity in the comprehensive coverage of the major academic and professional fields within this group. One noticeable point of difference concerns the fields of Agriculture and Dentistry (but not Medicine): the older universities from this group generally featured comprehensively AOU's dedicated to these fields, while the younger ones did not.

The one most striking development common to universities of this group concerned the progressive establishment of comprehensive AOU's in the fields of the Health Sciences and in the field of Education over the period investigated. With this establishment, the group of established research universities thus began competing increasingly with the other groups of universities in which these AOU's featured prominently.

Group of post-1960 universities

Table: Comprehensive AOU's, post-1960 universities

	1987	1989	1991
Number of universities:	11	11	11
Average number of AOU's:	7.27	7.7	8.9

⁸ For this analysis, we counted both the ANU's faculties and research schools as comprehensive AOU's.

Minimum:	2	5	4
Maximum:	11	11	12
Standard Deviation	2.49	1.9	3.3
Coefficient of Variation (CV)	34	25	37

Over the period of 1987 -1991, the group of the post-1960 universities remained less comprehensive in terms of average number of AOU's if compared to the group of established research universities. This said, universities from this group grew stronger in terms of average number of AOU's over the years compared to the established research universities (22% compared to 11% growth). The group of post-1960 universities also maintained a greater diversity over the years as to its formal AOU's, and in 1991 its coefficient of variation was double that of the group of established research universities.

Both the major academic and professional fields were comprehensively covered, albeit less comprehensively as in the group of established research universities. Particularly striking was the coverage of Education: in 1991 all universities from the post-1960 group featured standalone, comprehensive Education AOU's.

The two standout fields in terms of growth of dedicated AOU's within this group were Law and the Health Sciences. In 1987, only two out of eleven universities had dedicated Law AOU's (either faculties or schools). By 1991, Law was taught at seven universities; either within newly established Law faculties, or within Law schools that were formally established within Arts or Business AOU's. Similarly, over the period 1987-91, seven universities established dedicated Health Sciences or Nursing Faculties.

Group of post-1987 universities

Table: Comprehensive AOU's, post-1987 universities

	1989	1991
Number of universities:	4	12
Average number of faculties:	6	6.11
Minimum:	4	4
Maximum:	9	10
Standard Deviation	2.12	2.18
Coefficient of Variation (CV)	35	36

Not surprisingly, the group of post-1987 universities was the least comprehensive group of universities in terms of average number of AOU's over the period investigated. Based upon its CV of 36, in 1991 its internal diversity was higher than that of the group of established research universities and pretty much on par in that year with that of the post-1960 universities group – yet still relatively low in overall terms.

In terms of commonalities in disciplinary fields, Economics or rather Business was one standout, with all universities for which we obtained reliable data for (10) featuring dedicated AOU's in 1991. In the same year nine post-1987 universities had engineering AOU's (standalone or combined), nine had dedicated Education AOU's, and seven featured Health Sciences AOU's (including Nursing). Arts AOU's featured prominently also across this group, yet further scrutiny of the data revealed that this

tended to be less comprehensive AOU's that were more applied in focus. By comparison, in 1991, only two post-1987 universities featured standalone Law AOU's, and there were only two comprehensive AOU's among the universities of this group dedicated to IT.

7. Change in student numbers 1987 to 1991

Staff and student data from the period from 1987 to 1991 further confirms the continued uniformity across the sector both before and immediately after the Dawkins reforms. Examining the growth in student numbers, the disciplines taught and studied, shows significant conformity despite the rapid changes in both the number of institutions and their scale following the reforms.

There was significant growth in the number of enrolled students across almost all faculties and departments (as captured by the academic organizational unit figures collected by the government) during the period. The universities grew on average by 4369 students, going from on average 7699 to 12068 between 1987 and 1991. However, across the sector overall the CV remained largely stable (growing from 51 to 56). This was despite the creation of 12 new universities and the creation and expansion of discipline areas such as Nursing which had not historically been taught at Australian universities. With the mean number of students twice that of the standard deviation, it shows there was significant uniformity both before and immediately after the reforms. Overall the student numbers in Humanities, Social Studies, Education, Sciences, and Maths and Computing became more uniform following the creation of the UNS.

There were some exceptions to this overall uniformity as measured by CV. Engineering was an area that already showed great diversity in student numbers across the sector (CV 122 to 126) in 1987 and this continued through the expansion. Built Environment and Architecture (CV 150 to 168) and Agricultural Studies were the areas with the most diversity in student numbers prior to the reforms, although the latter was more uniform following the expansion of the system (CV 163 to 124).

One AOU that became much more diverse in student numbers during the period was the grouping which included Medicine and Health Sciences. It went from some diversity with a CV of 83 to much more diverse CV of 125. Prior to the reforms the older universities had medical schools (except ANU) accounting for most of the students while many of the new universities had no students in health disciplines at all. Following the creation of the UNS, Allied Health disciplines, including Nursing, became the provenance of universities and student numbers increased (Russell 1990). However, this expansion in student numbers was less uniform than in other areas with many universities continuing to have only limited Health Sciences courses.

The groupings of institutions showed some differences in uniformity across the period. The eight established research intensive universities, despite an average enrolments growth in student numbers of 6670 to 18133 across 1987-91 maintained a relatively stable CV for most disciplines, mirroring that for organizational analysis. Overall the CV for this group went from 35 to 43, showing a slight increase in diversity. The other twelve post-1960 universities similarly showed a significant degree of uniformity both prior to and following the changes, with CV going from 34 to 33, despite a doubling in average size with mean student numbers going from 4814 to 9776. This uniform growth is significant for the analysis here given the significant control government maintained on student numbers.

8. Changes in staff numbers 1988 to 1991

Data on changes in staff numbers over 88-91 shows a similar uniformity as the data with enrolments over the period, though the distribution of staff was more diverse than for students both before the changes and following them. The mean number of academic staff in the original 19 universities in 1988 prior to the changes was 1338. Following the expansion of the system, however, the average across the sector decreased marginally to 1289. In the same period, the CV across the sector went from 63 to 68, indicating a clear degree of uniformity in staff numbers.

There was a modest increase in staff number diversity for most AOU's across the sector, with Humanities CV going from 58 to 63, Social Studies 57 to 62, Education 65 to 76 and Science 55 to 89, and Maths and Computing 54 to 62. Of the AOU's showing greater diversity prior to and subsequent to the changes, Visual and Performing Arts went from CV 85 to 105, Engineering from 107 to 117 and Health Sciences from 101 to 104. Despite the dramatic growth in diversity in Allied Health students, the number of staff was relatively uniform across the sector.

Similar to the case with student numbers, Built Environment and Architecture (CV 157 to 143) and Agricultural Studies (CV 121 to 161) were the most diverse AOU's. Other than Built Environment, the only other AOU to see greater uniformity was the Business Administration, Economics and Law grouping (CV 67 to 54). This growing uniformity in latter grouping shows the beginning of a spread of business and law faculties across the entire system.

Analysis of the different groupings shows some important trends in the staff data. Despite difference in size for the established research intensive universities, there was significant uniformity with a CV of 24 which only increased to 31 following Dawkins. The different AOU's followed closely that for the overall sector. There was a similar pattern for the other pre-Dawkins (post-1960s) universities; the CV was 40 in 1988 that decreased to 31 in 1991. Again, differences in AOU mirrored the overall sector. The greatest diversity is seen in the post Dawkins universities, with CV for staff varying greatly across the AOU's, with Agricultural Studies as high as 204.

9. Discussion

There appears to have been little change in the vertical differentiation of AOU's over the period investigated at the universities already existing prior to the Dawkins reforms. This said, it is interesting that in 1991, out of the four universities hitherto possessing a flat structure, two were starting to transition to the 'mainstream' two-level faculty-department organizational model, thus creating an increasingly uniform picture in terms of the vertical organizational differentiation prevalent among these universities.

Interestingly, we found that the great majority of universities established post 1987 – eight out of eleven – immediately adopted the hierarchical two-level faculty-department structure traditionally associated with the established research universities. Only one of these universities instead adopted the flatter organizational structure to be found mainly among the 'progressive' public universities founded in the 1960s and 1970s.⁹ This indicates the existence of mimetic isomorphic tendencies among this group of universities.

Broadly supporting these findings of overall stability and salient isomorphic tendencies is the data on horizontal differentiation. Analysis revealed overall stability in terms of the average number of comprehensive AOU's at Australian universities over the period investigated, despite the creation of

⁹ The data was unclear with regard to two further post-1987 universities.

twelve new universities since 1987. Evidence for convergence tendencies existed most strongly in the professional fields, with the group of post-1960 universities almost universally establishing Law AOU's to emulate the established research-intensive universities. The group of post-1987 universities was a laggard with regard to this trend over the period investigated, but had strong coverage of professional fields that in turn came to feature increasingly prominently among the group of established research-intensive universities (e.g., Education and Health Sciences), thus leading to greater uniformity across the entire system.

Analysis of the change in student numbers over the period further supports the isomorphism thesis, as they demonstrate a remarkable uniformity despite the growth in the size and number of institutions. Students in areas such as the Humanities, Maths, Sciences, Business and Law, and Social Sciences clearly remained a core part of both new and older institutions following the Dawkins changes. Importantly, in only a few short years, students in Education and Computing become a central part of the university system. Though there is significant diversity in the number of students in the Health Sciences across the sector, they came to form a significant cohort in almost all universities in 1991 whereas prior to the Dawkins reforms it was in the main medical students who were part of the university system.

Although there was clearly more variability in the distribution of staff across the sector, their dispersal followed similar patterns to that of students. However, the data does reveal that for Health Sciences and Business and Law AOU's, the distributions of staff to student diverged following the reforms, likely as a result of larger student to staff ratios in these disciplines in the new universities.

Overall, the data in our study is consistent with the institutional isomorphism thesis, with a key finding that despite considerable growth in the sector its internal configuration in terms of formal organizational structures and actual academic offerings either stayed similar or became more uniform.

8. Final reflections

This empirical study has confirmed previous research claiming that Australian universities became more uniform following the changes brought about in the late 1980s by then Education Minister John Dawkins when he created the 'Unified National System' of higher education. In particular, it has revealed that formal structures and actual activities of Australian universities show isomorphic tendencies over the years 1987 through to 1991.

The policy reforms enacted under Minister John Dawkins sought to increase diversity in Australian higher education. As this paper clearly demonstrates, the opposite occurred, at least at the level of formal organizational features, and in only a few short years. In showing this, the paper contributes not only to the better understanding of the Dawkins reforms and the organizational change patterns triggered by it, but also contributes more broadly to the literature on the unintended consequences of large-scale higher education governance reform (e.g. see Krücken 2015).

While the paper shows important evidence for institutional isomorphism in Australian universities, it is nonetheless limited by the available data. A more fine-grained, discipline level data set would allow more detailed analysis to reveal the extent of the uniformity across the sector. Nonetheless, the evidence presented here provides useful hints as to what this would likely reveal, such as the proliferation of law schools around Australia in a short time. More broadly, this paper lends empirical support to the institutional isomorphism thesis.

At the same time, the research presented here raises the question concerning the influence of mechanisms of isomorphic change other than mimetic isomorphism. For example, the movement of academic staff throughout the system, as a result of the processes of mergers and the creation of new universities, opens the possibility of normative isomorphism being an influential driver for change throughout the period investigated. Exploring this dimension could constitute an avenue for future research.

Yet further analyses are required to determine the precise manifestation of coercive isomorphism in Australian universities. The establishment of uniform funding formulae would seem to be a plausible driver for conformity in the Australian system, as has been previously suggested (Piper 1995; Marginson & Marshman 2013). But to date we are still lacking detailed analyses of the development of performance-based budgeting processes and reporting measures within universities in the aftermath of the Dawkins reforms, and their alignment with those performance-based governance mechanisms externally enforced on universities by the central resource supplier and policy agent, the Australian Commonwealth government. In pursuing this potential research agenda, a neo-institutionalist framework could be usefully complemented by resource dependence theory (Tolbert 1985; Pfeffer & Salancik 1978).

Finally, the investigation of the various dimensions of isomorphic change discussed here could also profit from detailed institutional case studies supplementing the system-level analysis presented in this paper.

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