Institutional thickness and institutional effectiveness: developing regional indices for policy and practice in Australia

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There has been considerable discussion of the role of institutions in development, including regional development, since the early 1990s with the work of North in 1990 followed by major interventions from Amin and Thrift in 1995 and other researchers. In large measure this set of literature has focused on evaluating and describing the ‘institutional thickness’ of places, the relative richness or poverty of institutional structures that support economic activity and growth. While much discussed, this concept has struggled when considered quantitatively. Some authors have noted that regions can have too much institutional thickness, with agencies and government entities ‘crowding’ each other out and distracting growth efforts. Recently Rodriguez-Pose in 2013 has argued that there is a need to reconsider this set of concepts, and that there should be a focus on institutional effectiveness, not thickness. This paper takes up the challenge of measuring both institutional thickness and institutional effectiveness for Australia, producing an index at the level of local government areas (LGAs) and the territories of Regional Development Australia Committees. This disaggregated picture of effectiveness results in insights that highlight the importance of state structures, the relative advantage of metropolitan location, the pivotal role of political influence and the capacity of regions to shape their own future.

Keywords: Institutions; regions; institutional thickness; institutional effectiveness; Australia; regional indices

Institutions, government and the development of regions

Institutional factors have been recognized as important in shaping the growth trajectories of regions for a considerable period of time (North, 1990). Over recent years a considerable body of work has developed looking at the impact of institutions on regional or place-based development, including foci on regional innovation systems, regional competitiveness, leadership at the local scale, the relationship with governance and the intersection with human capital (Sotarauta, 2009, 2010; Sotarauta & Mustikkamaki, 2012). Supranational organizations – such as the European Union (EU) and the Organisation for Economic Co-operation and Development (OECD) – have also considered this topic from a broader perspective, focusing on the quality of governmental systems and exposure to corruption. A number of authors have argued that institutions contribute to the highly differentiated growth prospects of places. It has been argued, for example, that the very different outcomes resulting from the closure of automotive plants in
Australia and the UK in 2004 and 2005 were a product of institutional structures and their effectiveness (Bailey, de Bentley, Ruyter, & Hall, 2014; Beer, 2014). Similarly, Morrison (2014) attributed the stronger economic performance of the rural economy of north Queensland relative to the equally agricultural northern Wisconsin to the presence of better-developed institutional networks and arrangements.

Within the regional sphere, some of the most discussed work has been that of Amin and Thrift (1995) which argued that some places develop because they are ‘thick’ with institutions that promote growth and provide numerous pathways to development. Partly influenced by work on ‘The Third Italy’ – and drawing upon the much broader ‘New Regionalism’ literature (Rainnie & Grobelaar, 2005) – the ‘institutional thickness’ perspective argues that places with a greater number of institutions are more likely to succeed than places where institutions are ‘thin’ or lacking. This argument, however, is both difficult to substantiate empirically (Raco, 1998) and open to challenge conceptually. In recent writing, Rodriguez-Pose (2013) has argued that the effectiveness of institutional arrangements is not necessarily a matter of having too many or too few institutions, rather it is a question of having the correct mix of effective institutions. This perspective is intuitively attractive, as both the theoretical literature and published case studies suggest that while some places are challenged by institutions that are too small or too few to facilitate growth, others have a plethora of actors, often crowding each other out. Tomaney (2014) noted that there is inevitably an uneven geography to regional institutions and that they contribute to the instrumental performance of regions, while simultaneously serving to express local identity.

Rodriguez-Pose (2013) posits that it is possible to separate institution dynamics into two components: institutional structure (which institutions are present, how they are organized, their size etc) and institutional arrangement (how well do the institutions relate to each other, are they fit for purpose from the perspective of the wider community?). There is growing recognition that institutions are increasingly important in driving growth (Rodriguez-Pose, 2013). This insight, of course, is not new, with North (1990) arguing for the importance of institutional determinants of growth more than two decades ago. For North the long-term economic performance of places is shaped by their institutional structure. Others have noted (Morgan, 2007) that institutions are specific to places, both shaping their development and being shaped by them in turn. They potentially have far-reaching impacts as

they generate place-specific forms of trust amongst economic actors and reduce transaction costs, provide collective goods, foster transparency, promote entrepreneurship, grease the functioning of labour markets, adapt in the face of shocks in order to provide problem-solving arrangements, and ultimately lead to greater economic efficiency (Rodriguez-Pose, 2013, p. 1037).

Institutions can take a variety of forms. North (1990, p. 477) defined institutions as ‘the rules of the game’, while others have argued that it is possible to identify both formal and informal institutions, with Amin (1999, p. 367) arguing for the need to recognize

‘formal institutions such as rules, laws and organisations, as well as informal or tacit institutions such as individual habits, group routines and social norms and values’.

Phenomena such as property laws and the formal structures of government are recognized as formal or ‘hard’ institutions, while social capital can be thought of as an
informal or ‘soft’ institution. Other examples of soft infrastructure include expectations for enterprises to work cooperatively, and that there will be integrity within government. Ayres (2014) has recently stressed the need to pay greater attention to informal institutions as contemporary analysis of institutions tends to ‘underplay the social construction of cities in contemporary policy making’ (p. 6).

Analysis of the relationship between place-based growth and institutions shows a clear relationship between formal institutional arrangements and development (Gertler, 2010; Martin, 2000). Put simply, places with inadequate property laws and governance either will not grow or grow slowly. However, evidence on the impact of informal institutions is not straightforward. In part this reflects the challenge of measuring – and therefore quantifying the influence of – such apparently intangible factors as trust, effective leadership and culture. Moreover, Rodriguez-Pose (2013, p. 1041) acknowledged that ‘soft’ institutions can exert a negative impact on the growth of places:

while informal institutions can facilitate opportunities for economic activity, they can also end up creating vicious cycles of suboptimal development trajectories through institutional lock in, which takes place in the presence of rigid institutions that can neither anticipate nor respond to changes in economic circumstances.

The OECD (2012), for example, noted that the retarded development of one of its case study regions in Mexico was an outcome of cultural factors, including the impact of long-established elites who awarded priority to the maintenance of their power over the achievement of broader regional growth. Clearly, ‘soft’ institutional factors can exert an influence in at least two directions: fuelling growth in some places, and impeding development in others.

Rodriguez-Pose (2013) and Farole, Rodriguez-Pose, and Storper (2011) concluded that it is difficult to draw out the policy and practice implications of our understanding of institutional factors in shaping growth. While both authors accepted their importance, each region or city has a distinctive suite of institutions that are not amenable to a ‘one size fits all’ approach to reform. Moreover, institutional arrangements are often difficult to shift, requiring more than simple policy transformations to bring about change. Rodriguez-Pose (2013) highlighted the magnitude of this gap in the practice of local and regional economic development, and its potentially negative impacts: effective economic development should function like a bicycle in balance, with equal capacity in both strategy formation and implementation. Too often, he argued, institutional factors have the capacity to create circumstances whereby strategy overwhelms implementation or alternatively, both strategy and implementation are flawed, resulting in very poor outcomes. In some cases the two are absent entirely and there is the mere appearance of a commitment to local development. It could be argued, for example, that the very different outcomes resulting from the closure of automotive plants in Australia and the UK in the 2004 and 2005 was a product of differing institutional structures and their highly differentiated effectiveness (Bailey et al., 2014; Beer, 2014).

Intuitively, the argument put forward by Rodriguez-Pose (2013) is attractive. The research literature is crowded with instances where the culture of one city or community varies greatly from that of its neighbour, resulting in very different development outcomes. Culture, the ‘lived memory’ of towns and cities, and the attitudes of both the broader community and officials are difficult phenomena to measure, and equally challenging entities to reshape. Tomaney (2014) acknowledged the methodological challenges of analysing the effects of institutions on regions are considerable, with the
The development of indicators even more demanding. The need to define effectively and identify institutions is one of the most significant challenges, and one left unfinished by Rodriguez-Pose (2013). There is a tendency for institutions and governance to be treated as synonyms, ignoring the fact that the former is a much broader concept and that a substantial body of work has already considered the role of government processes in shaping regional outcomes. Rodriguez-Pose and Garcilazo (2013), for example, analysed the impact of EU Structural and Cohesion Funds, as well as the quality of sub-national governments on regional growth. The authors concluded that while both quality of government and EU funding shaped outcomes, the quality of government was the more significant, with its influence on the development of regions very important above a threshold of expenditure – equivalent to €80 per capita per year. Charron, Dijkstra, and Lapuente (2014) also concluded that the quality of government was important in shaping the health, well-being and social fabric of region. Their analysis suggested that the presence of particular institutions is an important determinant of good government, especially those that reduce the scope for corruption, nepotism or other behaviours that reduce the productivity of the economy.

Other authors have documented the fact that regional policies have suboptimal and indeed perverse outcomes. Bouvet and Dall’Erba (2010) analysed the allocation of EU Structural Funds over the period 1989–99 and concluded that while the level of need within a region was important, they were not the sole determinant of funding outcomes. Politics, including the relationship between the various tiers of government, was critical in influencing government subventions. The authors concluded that ‘political bargaining will always be part of the allocation process because there are too many potential recipient regions, and the decision process involves interaction between several levels of the political arena’ (Bouvet & Dall’Erba, 2010, p. 524).

In a similar vein, Bloom and Petrova (2013) examined the allocation of Structural Funds in Latvia and Bulgaria and concluded that the EU’s programme objectives had been ‘subverted’ by internal national politics. Funding tended to flow to the wealthier, not poorer, regions within each nation, and localities that had previously supported the national government of the day were more likely to receiving funding than those that had not. Australia is not exempt from such apparent bias in the allocation of central government funding, with a number of reports by the Australian National Audit Office (ANAO) noting an apparent distortion of funding. In 2010 the ANAO reviewed the Rudd Labor government’s Regional and Local Community Infrastructure Program, finding that ‘projects located in electorates held by the Australian Labor Party and Independent Members were more successful at being awarded funding than those located in electorates held by the coalition (ANAO, 2010, p. 23). Importantly, these findings mirror the ANAO’s (2007) conclusions about the Regional Partnership Program, which was an instrument of the then coalition government. Clearly, both sides of politics in Australia have influenced the distribution of public sector outlays to their own advantage.

Acknowledgement of political influence on the allocation of centrally provided funds to regions and localities raises a broader set of questions around the ‘black’ component of public sector programmes. A number of factors can exert a negative impact on regional development, and these may be institutions of longstanding at the regional or national level. Patronage, corruption and nepotism may all stymie development through the misallocation of resources, the withholding of development approvals or actions taken to restrict competition for existing businesses and similar behaviours. On the basis of their analysis of the World Bank’s World Governance Indicators, Kyriacou and Roca-Sagales (2012) concluded that fiscal decentralization tended to have a positive
impact on the quality of government, but this advantage was eroded or removed entirely if accompanied by political decentralization. In their view ‘local officials endowed with fiscal resources and subject to an electoral constraint may be prone to capture by local interests’ (p. 214). This perspective, however, is not consistent with the findings of Pike et al. (2010) whose analysis of UK data found that growth at the regional level was driven by national processes.

This paper sets out to investigate the scope for developing and implementing indicators of institutional effectiveness using Australia as a case study. The Australian economy and system of government shares many of the characteristics of other developed economies – including Europe, North America and Asia. It is an advanced, prosperous economy that has undergone considerable restructuring over the past 30 years (Beer, 2012), with strongly developed democratic traditions and a federal system of government. The Australian government has a limited role in the development of regions, although it exerts an enormous influence through its taxing powers, a strength underlined by its control of 80% of public sector revenues (Brown, 2006). State and territory governments have a mandate for regional development but limited resources and a greater focus on metropolitan areas. Local governments, by contrast, have a strongly developed interest in regional issues but no financial capacity to pursue their ambitions (Logan, 1978). A number of themes common across nations – and indeed groupings of nations if we consider the EU – are embedded within Australia’s system of government. This includes the tension between localized authority and centralized control of the economy, the significant role for transfer payments from the centre to the more junior tiers of government, the challenge of policy ‘silos’ impeding local development (Froy & Giguere, 2010; Niklasson, 2007) and competition between regions and

Developing a workable method for measuring institutional capacity.

The work of North (1990), Rodriguez-Pose (2013) and others emphasizes the importance of institutions for driving growth, but provides little guidance on how to measure institutional strength on the ground. Fortunately, the published literature provides significant clues as to the key dimensions of institutions at the local scale. These are first, the quality of human capital (Florida, 2002) and the ability to exert leadership at the local level (Surinach & Moreno, 2012); second, the presence of major organizations – public or private sector – with the capacity to invest, interact effectively with other large entities, as well as contribute to political processes at the regional scale; third, local financial strength or capacity; fourth, commitment to business growth and economic development; and fifth, The history of success in engaging with external political and administrative processes.

Quality of human capital and local leadership

Beer and Clower (2014) have provided an extensive review of the literature on place-based or local leadership, but their work simply builds upon an already substantial evidence base. Stimson, Stough, and Salazar (2009) have provided one of the most comprehensive accounts of regional or place-based leadership and integrated their analysis into the development of endogenous growth models at the regional scale. Stimson et al. (2009) argued that local leadership is a critical determinant of growth, as the quality of decisions made locally either adds or subtracts from a place’s growth potential. Put simply, places that take high-quality decisions will grow, while localities that make poor
choices are likely to squander their opportunities. Sotarauta (2009, 2010) has also considered leadership in detail, focusing on the role of networks and professional officers in leading regions, as well as the relationship between leadership and power within communities. Some of his work has considered the tactics employed by leaders to achieve specified ends. Other writing has considered leadership within the context of peripheral economies (Kroehn et al., 2010) and the contribution leadership makes to the achievement of environmental sustainability (Sotaratua, Horlings, & Liddle, 2012).

Place-based (Collinge & Gibney, 2010) or regional leadership is clearly a complex issue but there are a number of perspectives that can help integrate leadership into the development of an index of institutional strength. Stough, DeSantis, Stimson, and Roberts (2001, p. 177) argue leadership is the tendency of the community to collaborate across sectors in a sustained, purposeful manner to enhance the economic performance or economic environment of its region.

While Stimson, Stough, and Roberts (2002, p. 279) propose that leadership for regional economic development will not be based on traditional hierarchical relationships; rather it will be a collaborative relationship between institutional actors encompassing the public, private and community sectors – and it will be based on mutual trust and co-operation.

The concept of ‘slack resources’ is central to understanding the nature and composition of the leadership of regions or places and it was originally identified in the econometric analysis of firms (Cyert & Marsh, 1963). This concept was then applied to questions of local development by De Santis and Stough (1999), and again by Stimson et al. (2009). Critically, from this perspective, leadership is seen to depend upon the ‘slack resources’ in the region.

excess resources that may be manifest as sources of voluntary contributions to ‘civic activities’, or locally-based and focused community efforts by public, private and non-profit organisations and foundations. Such allocation of excess resources to those types of organisations and activities may be seen as enhancing both the leadership potential and institutional capacity of a region. (Stimson et al., 2009, p. 27)

Put more simply, good leadership depends on access to sufficient uncommitted resources, and talented individuals – human capital – and both are needed in sufficient quantities to adequately address questions of strategic significance. These resources may come in form of the voluntary time of committed individuals – local business leaders, senior government officers, community activists etc. – or from professional staff whose roles permit them to consider long term issues (Sotarauta, 2009).

This understanding on leadership at the local level has a number of practical implications: first, it emphasizes that the quality and perspectives of the individuals involved in leadership is critical. If leadership roles are occupied by individuals with limited capacity, the decision-making is likely to be poor. Second, it suggests that leadership can be found amongst those individuals who volunteer their time for the Boards and Advisory Committees of local and regional development agencies (McKinsey & Co, 1994) and amongst the professional staff of such agencies. It is not a case of either one or the other. Ideally, cities, regions and communities would draw upon both sources. Third, places may have leadership gaps as a consequence of a number of factors,
including the absence of key decision-makers in the region or too few individuals with sufficient time to contribute to shaping the welfare of the community. Beer and Baker (2012) identified leadership deficits in some Australian rural communities and attributed this phenomenon to the processes of economic reform evident in many of Australia’s rural regions. Economic adjustment has resulted in both public and private sector managers relocated out of the region, while local landowners and small business people are fully occupied sustaining their businesses.

The discussion above has practical implications for the development of an index of institutional strength. In order to predict local institutional strength data is needed that permits assessment of the quality of human capital in a region with respect to education and skills. The literature suggests that localities with a better qualified workforce will have stronger local leadership (Stimson et al., 2009). In addition, data are needed on the stock of individuals with experience that would assist them in undertaking leadership roles. This includes those occupying formal management positions, as well as farmers and those engaged in comparable roles in small business. There is a considerable body of work documenting the importance of farmers and other land owners as leaders in rural communities. Gray, Williams, and Emery (2005) noted that in many parts of rural and regional Australia ‘community leaders tend to be older, better educated, have higher incomes and are male. Community leaders are also disproportionately drawn from the land-based elite’ (p. 132). Small and medium-sized business owners often play a comparable role in metropolitan Australia. Finally, data are needed on the stock of social capital in a region, including bonding, and most especially bridging, social capital with the former focused on the strength of ties within a community and the latter a function of the capacity to build externally focused links (Putnam, 2000). Beugelsdijk and Smulders (2009) have suggested that while bridging social capital appears to have the capacity to enhance economic growth, an excess of bonding social capital may ‘crowd out’ economic activity. The evidence, however, is not definitive but we can assume that places with greater stocks of social capital have the potential for stronger institutional structures, all other factors being equal.

The presence of major organizations

The presence of one or more major organizations can have a significant impact on the institutional arrangements in a region. Facilities such as hospitals, research centres and – perhaps most significantly – universities have an enormous impact – in, and of, themselves – and can influence the economic performance of a region or urban centre. Such organizations have an impact because they introduce into, and sustain within, the region a pool of highly skilled individuals with a mix of technical abilities and managerial experience, tend to be outwardly focused – with many focused on national and global markets, serve as a source of demand for a range of locally produced goods and services, and these organizations ill often promote the region or locality in order to further their own institutional ambitions. In addition major companies or public sector entities are likely to be part of the knowledge economy in some way, and may be an important source of innovation at the regional, national or even global scale. Many of these institutions will have a national or international profile that will assist with regional branding and the marketing of regional produce internationally.

The impact of universities on regional economic performance has been much discussed and debated (Goddard & Chatterton, 1999; Harloe & Perry, 2004; and Power & Malmberg, 2008). Some universities clearly promote an agenda of regional
engagement, and in Australia one example of innovation is Murdoch University decision in 2013 to establish a commission to examine its relationship with Western Australia’s emerging regional order. Globally universities have been identified as important actors in regional development, with many taking a leadership role in development in both developed and developing nations (Raagma, in press). Economic development practitioners and governments often focus on the potential spin-off of new technologies (Beer & Cooper, 2007), and fail to recognize that such perspectives underestimate the global market for innovation. The W. K. Kellogg Foundation (2002) suggested that workforce development is the single greatest contribution that a university makes to its region, and that this impact is both predictable and relatively constant. Hospitals may also play a significant role within a regional economy, bringing skilled staff into the community, boosting demand for goods and services locally, providing a linkage to external political processes and sources of knowledge, and raising local incomes. The services they provide are of considerable value to regions, obviating the need to travel to obtain healthcare and encouraging both population growth and retention.

Major organizations are clearly potentially important within regions and data are needed on the types of organization present; and the size and potential impact of each organization.

**Local financial strength**

There has been a great deal of work recently on resilience, both economically (Pike et al., 2010) and with reference to sustainability (Nelson, Adger, & Brown, 2007). The desirability of having access to locally controlled resources that can be spent on local priorities is one of the clear implications from this body of work. These findings are consistent also with the broader body of work on subsidiarity and the desirability of placing government responsibilities with the most junior tier of government able to support these functions. Previous work on local economic development agencies in Australia noted that the absence of locally controlled resources was a significant impediment to effectiveness (Beer, Haughton, & Maude, 2003). And while this problem was not unique to Australia, jurisdictions such as England that reported similar – or greater – levels of centralizing authority, also reported muted results from local or economic development efforts.

Local government is a significant participant in economic development across Australia, both formally and informally. The size of a local government’s budget will have a substantial impact on its ability to encourage economic growth and development. Such impacts include the potential to offer social services that may make a locality more attractive place to live, the capacity to invest in tourism marketing and facility development, the ability to implement business capacity and retention polices, the opportunity to provide high-quality infrastructure and the ability to engage in regional networking and knowledge development activities. Local governments, therefore, would ideally have large budgets, few other commitments – such as repayments on borrowings – affecting their finances, and relatively low business rates. Such a combination of factors, however, is relatively rare given that the finances of many local governments are not sustainable (PWC, 2006).

In order to give effect to this category of measures of local institutional capacity, data are needed on the size of local government budgets, their relative capacity to engage in discretionary spending; and their borrowing capacity and current outlays on interest repayments.
Commitment to business growth and economic development

Not all local governments have either the commitment or capacity to engage with the development of their economies. Many local governments in Australia’s middle suburbs, for example, appear to shy away from economic development. Others may espouse a commitment to economic development, but fail to introduce adequate and appropriate policies to assist local government, or do not adequately inform local governments about their actions and programmes.

An indicator, or set of indicators, is needed that focuses upon the ways in which local government engages with the business community. The capacity to provide information to incoming investors, plus businesses with a relatively modest need to engage with council, is needed. Internet pages are potentially one key indicator of the business orientation of local government.

History of success in engaging with external political and administrative processes

Regions and communities need to interact successfully with central governments if they are to maximize their growth. Centralized funding is critical for the provision of major infrastructure with Beer, Haughton, et al. (2003) finding that many local and regional development agencies across Australia focus on lobbying for infrastructure, an activity that distinguished them from their peers in other nations. State and federal government assistance is also important for communities seeking support for new business ventures or for measures needed to support the restructuring of the local economy. Regions with well-developed institutional arrangements will be successful in securing central government support and the impacts of grant-seeking success may be long term.

Across regional Australia success in grant funding is likely to reflect a number of factors including the presence of a group of local leaders or a local government with the capacity – ability, skills, resources – to apply successfully for funding; and the presence of organizations, private firms or non-government entities with the capacity to engage with government priorities.

Importantly, the ability of a region or locality to secure a grant does not only reflect the ability of the applicant or applicants. The reports of the Australian National Auditor’s Office (2007) have noted there is an enduring tendency for government programmes to favour electorates held by the government of the day, or those that could be considered to be marginal electorates or constituencies. It is also reasonable to expect that more densely developed and populated regions are likely to secure a greater number of grants. However, it is important to acknowledge that political significance or connectedness is a critical feature of the local institutional arrangements, with Sorenson and Epps (2006) noting that a number of highly influential leadership cohorts in county towns in Queensland were built, and sustained, on their capacity to influence Brisbane-based politicians.

It can be argued that success in winning regionally focused grants provides an important insight into the strength of local institutions. It serves to validate other measures, but can also be considered an independent influence on regional growth. Data are therefore needed that shows the relative strength of regions in attracting external funds.
**Measuring institutional capacity – towards a workable indicator?**

This section has argued that it is possible to identify from the literature five dimensions to institutional strength at the regional scale. These are:

- first, the quality of human capital and the ability to exert leadership at the local level;
- second, the presence of major organizations – public or private sector – with the capacity to invest, interact effectively with other large entities, and contribute to political processes at the regional scale;
- third, local financial capacity or strength, as reflected in local government finances;
- fourth, a commitment to business growth and economic development;
- fifth, the history of success in engaging with external political and administrative processes – path dependency.

**Data and method: building an evidence base**

**Data source**

This section matches data to the five dimensions of institutional strength at the regional scale identified in previous sections. The data for the index came from a number of sources: the Australian Bureau of Statistics, 2011 Census was an important source of information for many of the identified measures. This was supplemented by Small Area Labour Market Data produced by the Department of Employment, which are updated regularly and provide a good match with local government boundaries. Some of the data could only be sourced through detailed web-based searches. To that end, the research team sought out the address of all major research institutions in Australia – universities, colleges of technical and further education, the campuses of the Commonwealth Scientific and Industrial Research Organisation (CSIRO), as well as major hospitals etc. Data on local government finances are published on the web for New South Wales and this source was used for this state. In all other jurisdictions we used an internet search to download, inspect and record the budget statements for the year 2011–12 for each statistical local area (SLA) or local government area (LGA). Local governments are required to publish their financial statements, but in a small number of instances these data could not be found. In these cases, missing data were recorded.

The Australian government’s Department of Infrastructure and Regions publishes the outcomes of its major funding round – the Regional Development Australia Fund (RDAF) – and these data were used as the measure of success in securing grant funding.

Not all data were available through objectives measures or data sets. Commitment to business growth and economic development is difficult to measure. An assessment was made of each local government’s website and this assessment examined the accessibility of business information and the number, and strength, of pro-business measures – such as support for business start-ups – evident on each webpage. It is important to acknowledge that few local governments received high scores.

In detail, each of the indicators identified above were matched with data (Table 1).

Importantly, the five key dimensions discussed above result in a measure of institutional thickness, not institutional effectiveness, which Rodriguez-Pose (2013) argued was the more important determinant of development outcomes. In order to convert institutional thickness to institutional effectiveness we moderated the aggregate score based on the presence and strength of institutions, with a measure of economic development outcomes. Labour market growth – as measured by change in the employment rate for small area labour markets (SALM) for the period 2009–13 was used for this purpose.
Table 1. Broad scale indicators and detailed measures of institutional performance.

| Broad scale indicator                                      | Detailed measure                                                                 |
|------------------------------------------------------------|----------------------------------------------------------------------------------|
| Human Capital – the quality of human capital and leadership locally | Public sector workforce: a measure of the public sector capacity of the region, higher numbers equal higher rankings (2011 Census) |
| Percentage of the population with a degree: measures the potential for bridging social capital and the skills base within the workforce (2011 Census) |
| Percentage of the workforce employed in management, the professions or self-employed (including farmers) available for leadership roles (2011 Census) |
| Unemployment rate (small area labour market (SALM) 2011)  | Percentage of people who volunteer: bridging and bonding social capital (2011 Census) |
| Major organizations                                         | Presence of (1) post-school educational institution (university or TAFE); (2) major hospital; and (3) other major publicly funded facility (excluding defence) |
| Local financial strength – overall capacity of local governments | Local government (per capita) discretionary expenditure capacity on (1) local roads and (2) general-purpose spending |
| Financial burden of local government: (1) revenue; (2) expenditure and (3) rate revenue (per capita) |
| Commitment to business growth and economic development (web search 2014) | Business accessibility score – accessibility of information on business |
|                                             | Pro-business policy score – number of local government policies assisting business |
|                                             | Total weighted score aggregates information relating to business information, existence of grants, and pro-business policy |
| Success with external political and administrative processes | Value of (per capita) Regional Development Australia Fund (RDAF) grants received (2007–12) |

**Preliminary analysis**

The examination of resources available to LGA and RDAs began with 17 individual data series. The initial examination sought to determine whether there was redundancy in the data – that is, a high correlation between any two of the series being considered. A high correlation would indicate that one of the inputs adds little to the analysis and that it would be appropriate to exclude it in order to avoid duplication and minimize complexity. Pearson’s correlation coefficient is the most usual way to examine correlation for the type of data used here: a Pearson’s correlation of between 0.5 and 0.7 is classified as ‘substantial or large’; a correlation of 0.7 or above is classified as ‘very large’ (Cohen, 1988). The examination of correlations resulted in the reduction of the inputs into the index to 13 variables, and none of the remaining variables could be considered redundant (Table 2).

**Composite indicators**

Composite indicators are efficient data-reduction devices. They facilitate analysis because they provide, in a single measure, an intelligible summary of several indicator
variables, and can nearly maintaining the specific detail of the individual indicators (Babbie, 2001). Representing the variations in multiple variables by a single index is appealing because, unless a concept is defined very narrowly, multiple indicators are needed to cover the complexity of most concepts (de Vaus, 2002). Nonetheless, developing meaningful indices is not straightforward, and there is no specific procedure to follow (Babbie 2005; de Vaus, 2002). As little precedent exists for construction of the index of institutional thickness a straightforward additive method for combining the indicators was used.

It is important to note that there are two options when considering indices at the RDA level: first, they can be the average of the LGA-level data; and second, they can be based on a separate calculation of RDA-level data. In this analysis the second option was used, that is, analysis was based on RDA-level data.

**The range for the index**

The units of the indicators and the weights used for aggregation are interdependent, for example, a one-unit change in indicators measured in different units will cause different changes in the composite index. Thus, to compensate for indicators measured in different units, they are usually normalized before they are aggregated.

|                  | LGA level         | RDA level         |
|------------------|-------------------|-------------------|
|                  | Mean  | SD    | Minimum | Maximum | Mean  | SD    | Minimum | Maximum |
| Business accessibility score | 2.8   | 2.7   | 0       | 10      | 29.0  | 28.0  | 0       | 162.1   |
| Pro business policy score        | 0.7   | 1.4   | 0       | 9       | 6.9   | 9.0   | 0       | 40      |
| University or TAFE score       | 2.8   | 3.9   | 0       | 44      | 28.5  | 30.3  | 0       | 186     |
| Facility score               | 1.2   | 1.6   | 0       | 19      | 12.6  | 9.7   | 0       | 37      |
| Volunteering (%)              | 3.4   | 6.3   | 0       | 21.2    | 4.5   | 4.5   | 0       | 16.3    |
| People with a degree (%)      | 16.6  | 10.7  | 1.2     | 57.1    | 15.8  | 6.8   | 8.4     | 33.5    |
| Employed in management (%)    | 34.9  | 10.3  | 13.4    | 70.1    | 32.7  | 5.7   | 20.8    | 48      |
| Employed in the public sector (%) | 3.3   | 2.2   | 0.6     | 18.9    | 3.1   | 1.3   | 1.7     | 8.5     |
| Local roads spending (per capita) | 207  | 392   | 3.9     | 5474    | 148   | 178   | 8       | 893     |
| General-purpose spending (per capita) | 409  | 860   | 15      | 10,733  | 340   | 446   | 20      | 2229    |
| Rate revenue (per capita)      | 1584  | 6030  | 3.3     | 138,170 | 1431  | 1725  | 567     | 12,580  |
| RDAF value (per capita)        | 140   | 662   | 0.0     | 11,968  | 110   | 147   | 0       | 596     |
| Unemployment rate (%)          | 5.5   | 4.3   | 0.5     | 67      | 5.7   | 2.0   | 2.8     | 14.1    |

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Several methods of transforming indicators are available, such as conversion to z-scores (a mean zero, unit standard deviation variable), ranking, rescaling, distance to a reference measure, categorical scales, logarithmic transformation, and per cent difference. Both rescaling and z-score transformation are commonly applied.

A common method of rescaling which combines features of standardization is:

$$NX = \frac{x_i - \min(x)}{\max(x) - \min(x)}$$

This linear, monotonic, transformation results in new indicators, NX, with a range from zero to one ([0,1]). It does not change the relative position of indicators in the distribution: the original and transformed indicators are perfectly correlated, and it is straightforward and transparent. It is equivalent to standardizing to a z-score and rescaling, so it has the advantages and drawbacks of z-score transformation, for example, the NX transformation rewards higher values. A very good result on a few indicators is more advantageous than a larger number of average scores, although this can be overcome by excluding cases or by applying differential, subjective, weight adjustments if desired.

The weights for the index

Once transformed, indicators need to be combined in a meaningful way – should individual indicators be weighted equally? It is suggested that items be weighted equally and that the burden of proof should be on differential weighting; equal weights should be the norm (Babbie, 2005). Applying equal weights (to transformed data) is a common practice. A linear aggregation of q indicator variables ($x_i$) with equal weights ($w$) for individual i, at time t, takes the form:

$$\text{Index}_i = w_1x_{1i} + w_2x_{2i} + \ldots + w_qx_{qi}$$

Importantly, analyses using more complex methods (e.g., principal components analysis) resulted in indexes that were highly correlated with the simple additive composite and on this basis the more complex methods were deemed unnecessary.

Finally, for convenience, the resulting index itself (Index$_i$) was itself rescaled (normalized) to a range of [0,1] resulting in the index of institutional thickness with the summary statistics shown in Table 3.

**Institutional effectiveness**

The final step was to weight the index of institutional thickness and so derive the index of institutional effectiveness. As previously described a simple weighting process was used: the index of institutional thickness was weighted by the (decile) of the average of the annual employment growth for the four annual periods between 2009 to 2013. As with the index of institutional thickness, the raw index of institutional effectiveness was rescaled – in this case to have a range of one to ten ([1,10]) (Table 4).

| Level                      | Number of observations | Mean | SD  | Minimum | Maximum |
|----------------------------|------------------------|------|-----|---------|---------|
| Institutional thickness RDA | 54                     | 0.41 | 0.18| 0       | 1       |
| Institutional thickness LGA| 558                    | 0.26 | 0.14| 0       | 1       |
Outcomes

As noted above, two indices were generated: the first was an index of institutional thickness and the second an index of institutional effectiveness. It is important to both distinguish between the two measures and understand their relationship to each other. The former is a measure of the richness of institutions and government processes in a locality, whereas the latter attempts to measure the interaction between institutional processes and economic development outcomes.

A value was generated for both indices for each of the approximately 550 local governments across Australia and for the 56 Regional Development Australia (RDA) committees. RDAs were established by the Rudd Labor government that came to power in 2007 as the national vehicle for regional development policy and implementation (Buultjens, Ambrosoli, & Dollery, 2012) and each is constituted as a territory made up of a number of local government areas. No RDA regions cross state or territory boundaries. Australia is a large nation, with a relative simple political geography comprised of six states and two territories – the Northern Territory and the Australian Capital Territory (ACT) (Figure 1). Australia’s urban system is dominated by the capital cities, with 42% of the nation’s population living in the two largest centres of Sydney and Melbourne, and more than 60% of the population resident in one of the state capitals. Since the year 2000 the economy has been heavily affected by the growth of the resources industry – primarily coal and iron ore – with many commentators noting that the benefits of growth have been distributed unevenly (Beer, 2012). This ‘two speed’ or ‘patchwork’ economy has affected the labour market and contributed to both the development of some non-metropolitan regions and the decline of established manufacturing centres.

The results of the calculation of institutional thickness at the level of individual local governments are presented in Figure 2. In a small number of cases it was not possible to produce a final score because of the absence of data. This problem was most evident in the sparsely populated parts of northern South Australia and in the far west of New South Wales. Missing data were also an issue in and around Darwin in the Northern Territory, in northern New South Wales and for all of the ACT. In the latter instance, the ACT does not have local governments, which makes the application of this measure impractical.

Overall, the pattern of institutional thickness at the local government level is consistent with other indicators of social and economic capacity across Australia. In broad terms the key trends are a greater level of institutional thickness in the eastern seaboard states of Victoria, New South Wales and Queensland, and a ‘thinner’ set of institutions in Western Australia, South Australia, Tasmania and the Northern Territory. These state-based differences are overlaid by higher levels of institutional strength in the major metropolitan centres – the capital cities – especially Sydney, Melbourne, Brisbane and Perth. However, it is worth noting also that Adelaide possessed a far stronger set of institutions than any part of South Australia, and this in turn speaks to recent debates

| Level                          | Number of observations | Mean  | SD   | Minimum | Maximum |
|-------------------------------|------------------------|-------|------|---------|---------|
| Institutional effectiveness RDA | 54                     | 4.58  | 2.47 | 1       | 10      |
| Institutional effectiveness LGA* | 552                    | 3.04  | 1.57 | 1       | 10      |

Note: *Employment growth data were not available for six of the 558 LGAs.
about cities as the major engines of growth in the contemporary economy (e.g., Glaeser, 2011; Storper, 2013).

Secondly, state boundaries appear significant – local governments in South Australia received lower scores than those in Victoria, even when they are adjacent to each other. This outcome is to be expected given that local governments are a product of state legislation and their powers, responsibility and size reflect state policy and regulation. Third, all other things being equal, larger local governments appear to host greater institutional capacity than smaller ones, when measured by population size or budget. This feature of the distribution of institutional strength further reinforces the advantages available to the metropolitan areas. Fourth, some relatively remote localities in Western Australia, north western Australia, western Queensland and, most especially, western New South Wales have unexpectedly high levels of institutional capacity and this is a function of a high level of public sector employment – especially government provided services such as policing, social welfare and income support – in economies with few private sector jobs. Fifth, Tasmania appears as a patchwork, with relatively small councils (the total population of Tasmania is just approximately 500,000) and a concentration of public sector employment in the sparsely populated centre of the state. This employment is largely linked to publicly owned hydroelectric power. Finally, sparsely
populated areas in Western Australia have very poor institutional capacity and virtually all of the Northern Territory has poor institutional capacity. It is worth noting that the Northern Territory has a high Indigenous population and a sparse population in total.

Institutional thickness was calculated at the scale of RDA regions (Figure 3). Mapping this measure at this scale helps in identifying broader regional trends, including the influence of state and territory boundaries.

There is a clear divide between the eastern seaboard and the remainder of the country with respect to institutional capacity at the scale of RDA committees. With some notable exceptions, all RDA regions in Victoria, New South Wales, Tasmania and Queensland scored in the top half of the distribution, while South Australia, the Northern Territory and Western Australia presented a much more mixed set of outcomes. In large measure this pattern is to be expected, given the concentration of the Australian population – and institutions – in the nation’s east. Some relatively underdeveloped regions in South Australia (the Eyre Peninsula and the west coast of South Australia and the Pilbara-Gascoigne regions of Western Australia) scored relatively highly for institutional capacity and this would appear to reflect both a workforce with a high proportion of public sector workers and government investment in services and infrastructure for Indigenous communities. The ‘Black Economy’ is a well-documented feature of many remote and very remote regions in Australia (Pritchard & Gibson, 1989). Overall, the map reinforces the view that contemporary patterns of regional development in Australia are – at least in part – a product of historical legacy, with institutional processes favouring already developed places.

Figure 2. Institutional thickness by local government area, Australia.
Figure 4 presents data on institutional effectiveness by local government area across Australia. It is important to highlight the distinction between this indicator and the previous. Whereas the indicator of institutional thickness was a measure of the capacity or potential for growth, institutional effectiveness index is essentially a measure of outcomes. The inclusion of a labour market growth component provides both a market dimension to the analysis and an indication of how fully growth potential has been converted to growth outcomes.

When mapped at the RDA level, a clear division in institutional effectiveness emerges (Figure 5). The highly advantageous position of the large state capitals relative to other parts of Australia is perhaps the most significant to emerge from this analysis. The metropolitan centres of Brisbane, Adelaide, Melbourne, Perth and – most especially – Sydney were shown to have the most favourable combination of institutional and labour market conditions, resulting in both higher growth rates and stronger economies. Second, South Australia and Tasmania stand out in Figure 5 as places of comparative disadvantage, and across the two states only metropolitan Adelaide was placed in the top quintile nationally for institutional effectiveness. Third, Northern Australia received a relatively modest set of scores, reflecting the intersection between growth in resource based industries, and the impacts of relative under-development (RAI, 2014). Fourth, New South Wales and Victoria were, on average, the best performing jurisdictions in Australia, with only the New England tablelands and south-east New South Wales reporting scores in the lower half of the distribution. The relatively advantaged position of these two states is a function of their historical resource endowments, larger populations, their position within the national economy and structures of governance.
Figure 4. Institutional effectiveness by local government area, Australia.

Figure 5. Institutional effectiveness by Regional Development Committee Region, Australia.
Conclusions

In large measure recent scholarship on the drivers of growth at the regional scale have tended to focus on the ‘soft’ infrastructure that enables development, rather than more conventional factors, such as transport systems, the quality of education and related factors. This shift is perhaps evident most clearly in the writings of the OECD on the determinants of regional growth (OECD, 2009, 2010, 2011, 2012). This ‘institutional turn’ in our understanding and analysis of regional dynamics (Cooke, Gomez Uranga, & Etxebarria, 1997; Martin & Sunley, 2006; Raco, 1999) continues to challenge researchers both to develop better conceptual frameworks for interpreting institutions and new ways of assessing their impact. The work of Rodriguez-Pose (2013) represents a significant contribution to the evolution of the field: effectively beginning a process to ‘unpack’ a concept that was overly ‘fuzzy’ (Markusen, 1999) and near-impossible to measure precisely. To date research has largely relied upon either survey data or large-scale data sets produced by supra-national organizations (e.g., Charron et al., 2014; Rodriguez-Pose & Garcilazo, 2013) but such analyses do not fully capture the entirety of institutional influences, including the ‘soft’ institutions highlighted by Ayres (2014).

A more encompassing approach is needed if we are to advance both our understanding of the field and our methods of measuring – and modelling – the drivers of growth.

This paper set out investigate the implications of Rodriguez-Pose’s (2013) arguments on the relationship between institutional structure and institutional arrangement, with the two potentially finding expression in the overall effectiveness of institutions. The research developed a composite index that attempted to bring life to these concepts. Perhaps most importantly, the paper shows it is possible to develop a set of metrics that indicate both the potential benefits associated with the institutions in a region or place, and the degree to which these hypothesized advantages are realized. Through this process the research has contributed to the established literature on the relationship between the quality of governance and regional growth. While previous work has assessed the relative importance of the quality of government vis-à-vis the implementation of specialist regional programmes (Rodriguez-Pose & Garcilazo, 2013) and established the central role of government in setting the conditions for growth (Charron et al., 2014) this study has been able to identify a broader range of institutional determinants of growth – including informal institutions – and link them to development outcomes. Clearly more analysis is needed – including work investigating causality – but the outcomes presented here represent important first steps towards a more comprehensive analysis. It is encouraging that the mapped data on institutional effectiveness and institutional thickness have both face validity and strong correlations with other measures of social and economic well-being at the regional scale (Baum, O’Connor, & Stimson, 2005; BITRD&LG, 2009).

The outcomes of this research have been significant for the questions they have not been able shed light on. The outcomes presented here effectively measure institutional thickness – which can be thought of as institutional capacity – and institutional effectiveness – the translation of that institutional potential into development outcomes. The mapping of the two measures leads to two clear conclusions: first, there is not a simple one-to-one relationship between institutional capacity and institutional effectiveness; and, second, the gap between expected outcomes and those realized reflects a host of other factors, including natural resource endowments, population characteristics, the absolute and relative scale of the regional economy, remoteness and the legacy of political processes and past development decisions. The paper sheds little light on questions...
of institutional structure and institutional arrangement (Rodriguez-Pose, 2013) which suggests more work is needed to develop further these concepts and map out a method of assessing their impact. Rodriguez-Pose’s (2013) broad-scale focus on how well institutions work together at the local or regional scale is intellectually appealing but may prove difficult to assess in any objective sense.

The research presented here raises a number of important questions for policy, practice and the development of theory. The findings suggest that, in Australia at least, institutional strength is a necessary but not sufficient condition for growth. That is, while strong institutions may assist growth regionally, they do not provide a guarantee of positive outcomes, and this finding is consistent with the work of Pike et al. (2010). It is possible that in other nations institutional factors will be more influential than in Australia, and we could hypothesize that in economies where public sector outlays represent a higher percentage of gross domestic product (GDP) institutions are more likely to drive growth – or at least have a significant role – rather than play a subsidiary role. It is important to acknowledge that the research presented here builds an evidence base for one nation alone, and one which does not have a strong record in regional policy formulation and implementation (Beer, 2014). Certainly the results presented here would not be representative of nations within the EU, where supra-national engagement with territorial development is well developed and often supplemented by national programmes. There is, therefore, a strong case for extending this analysis to other nations, including other federations, such as the United States, Canada, Malaysia, Germany and Brazil, as well as unitary systems of government such as the UK, Finland, New Zealand, France, Spain and Ireland. In the longer-term, there may be scope to compare results across nations or develop a cross national data set.

The analysis presented in this paper found that Sydney, the Australian region with the most positive economic conditions, was characterized by both strong institutional structures and a vibrant labour market fuelled by its central role in linking Australia to the global economy. To a greater or lesser degree all other Australian capitals enjoy similar advantages. One possible conclusion to draw from this research is that for Australia at least, a public sector focus on institution-building as a form of regional development is misplaced, and that more attention should be afforded to labour market and inward investment activities. However, an alternative interpretation would suggest that the forms of intervention used in Australia are simply not effective and that other policy instruments would produce better outcomes (Bailey et al., 2014). Bailey and De Propris (2014) have recently presented strong evidence that suggests regional policies build community strength, encourage knowledge spillovers between firms and build greater adaptive capacity in the face of nation-wide shocks. There may therefore be a need to build both the quality and quantity of regional policy interventions in Australia.

Our research highlights some key features of regional development in Australia. First, states and territories matter for both institutional capacity and institutional effectiveness, with state legislation largely determinant of local government size and capacity. Some states tend to have larger local governments, while others are marked by a multitude of smaller municipalities and shires. Jurisdictions with larger local governments were, on average, stronger. Second, institution building in Australia is not necessarily focused on economic outcomes, a fact discussed by a number of authors (e.g., Beer, Maude & Pritchard, 2003). This would appear to be a major gap in Australia’s productive infrastructure, with too little attention paid to questions of jobs growth, skills formation, investment attraction or infrastructure provision at the local level. The very low scores awarded to many local governments for their ‘pro business’ orientation, and the
quality of business data delivered via their websites underlines this point. It emphasizes
the need for a reorientation of the regulatory environment in which local government
operates and within local governments a higher level of resources directed towards
development. Finally, both institutional capacity and effective institutional power are
concentrated in the capital cities, with Sydney the most advantageous location for busi-
ness by a considerable margin. This is a longstanding feature of Australia’s economy
and pattern of urban development and it is disappointing that the Australian nation has
not found a way to empower its less developed regions in their efforts to grow.

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Notes
1. It would be fair to say that some academic work in this area reads as if it is boosterism for
an individual’s institution rather than objective academic analysis. Some claims, therefore,
need to be read with caution.
2. The geographer, Professor Mike Taylor has at times referred to ‘institutional thickness’ as the
ultimate black box.

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