Consolidation Policy and its Effects on the City.

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Abstract: Consolidation policies have been pursued in Australian cities as they have struggled to invest in the infrastructure and accommodation needs of the population increases they have experienced over the last thirty years. The physical determinist policy of consolidation has not been based on rigorous evidence of the behavior of households who have found their accommodation choices constrained nor is there evidence that it leads to reduced energy or water consumption.

Introduction

For the last 30 years planning authorities have pursued a policy of urban consolidation or densification. The reasons they have done so are mixed. In part the policy was adopted to try to control perceived unacceptable outward expansion of urban areas as their population increased, although the need to do so was rarely articulated in a reasoned way. It was also felt that increasing density would reduce transport problems and make the city more sustainable by reducing water and energy consumption. Local boosterism and developers have, however, eschewed sober analysis in favour of superficial pronouncements of the improved quality claimed for increasing density. Planners simply repeated the alleged desperate 'need' to change the nature and character of the Australian city. In many situations they appeared to act as little more than proselytisers for developers.

How did we come to this?

The initial settlements in Australia huddled around the landing points where the settlers fetched up. The nascent cities became crowded and insanitary reproducing the urban conditions of cities in Britain. The colonial administrators were determined to make settlements self-sufficient as soon as possible. They also encouraged disciplined development and expansion of the urban space. The availability of potable water became a 'controlling' factor in the form of development. Households were expected to provide much of their own food and water and manage their own wastes as far as possible. This led to development in which houses had sufficient land attached to them to meet household needs of fresh milk, vegetables, fruit and protein as well as managing human body wastes. The availability of land resulted in a form of development recognizable today as 'the quarter acre block' characterized the suburban spread of the cities. This felicitous form of development offered an opportunity for settlers of all rank and station to enjoy a higher standard of living than they had experienced in Britain. Mullins (1981a and b) suggested that the high standard of living of urban Australians lay in the form of development and opportunities it offered. Gaynor (2006) revealed the historical importance of the 'domestic' production of food in the suburbs.

The drivers of city growth lay in two very fundamental aspirations that had been in existence throughout much of our civilization:

1. The strong desire of people to make themselves comfortable and to have control over their living space: so they have demanded, as and when they could afford them, internal spaces in their housing that could be designated for different uses – in the first dwellings all activities took place in one room. As their wealth grew they wanted other specialized spaces within dwellings leading to the increase in dwelling size. They also wanted control over 'external' space hence their desire for gardens. As they prospered communities also wanted spaces for assembly and for sporting facilities, parks and promenade sites.
2. The second influence was what we might call the Curiosity Factor. It was the desire of people to "see over the metaphorical hill" to see and experience the world beyond the confines of their immediate surrounds. This led to forms of transport that relied on higher levels of technology. The development of steam engines led to trains and trams. The development of electrical motors led to more sophisticated public transport. Each development gave people more choices and enabled industry and commerce to be pursued in other locations. The development of motor cars offered people the choice of when and where they could travel, with whom and in what degree of comfort and security they chose.

The developments that enabled people to fulfill their ambitions about the kind of spaces they wanted in their cities and take advantage of the freedoms the two aspirations reflected found expression in the nature of Australian cities. Stretton (1970) argued that the working out of community ambitions and the development of the economy produced a dramatic improvement in the quality of urban life in Australia producing housing and urban conditions that were generally felicitous and attractively egalitarian.

Prior to WWII

In the second half of the 19Th Century Sydney and Melbourne, grew rapidly adopting a suburbanised structure. Although late in the Century Australian cities grew at a relatively slow rate. Basic infrastructure services such as water services and transport were developed behind demand as and when they could be afforded by State governments. By the end of WWII there was a considerable pent up demand and a lag in service provision due to the 1930s Depression and the war. In the early post war period the Commonwealth initiated a major housing program to alleviate the overcrowding and other accommodation problems the nation had experienced (Troy 2012). Much of the early development occurred in fringe suburban areas such as in Sydney where there was a shortage of sewerage and transport. The use of septic tanks to manage human waste flows enabled development. Suburbanization was also facilitated by reliance on the motor car. In many areas roads were 'cut' but not sealed. Subdivisions lacked footpaths, kerbing and channeling, and had only primitive storm water management. The form of development afforded an opportunity to respond quickly to the pressures for simple accommodation. Little investment was made in public transport.

This was compounded by the Commonwealth's refusal to assist the States with funds for infrastructure as they struggled to cope with the growth they experienced as the Commonwealth pursued vigorous immigration programs. The increased relative power of the Commonwealth over the States as a consequence of the continuation of the war-time uniform taxation left it with the decisive influence over infrastructure. The Commonwealth was loath to fund rail investment, favouring investment in roads. Local government authorities in fringe areas progressively improved roads but the nature of rail public transport precluded that approach.

Post WWII

Those who sought to improve the life of those living in older inner areas did so by demanding secure play and recreation space. They also documented the problems of overcrowding in inner city housing and the lack of community facilities generally. The post WWII housing programs in Australia arose out of concern for the housing of lower income households who inhabited inner city areas. Proponents of better planning also argued for improved transport. They did not challenge prevailing views about the structure of the city. They assumed that the highly centralized cities that had evolved could 'work' efficiently with increasing populations.

The increase in population of major cities due to immigration policies and the decline of rural settlements revealed increasing problems of congestion including in the newer postwar suburbs. By the early 1970s arguments were made supporting the notion of increasing urban density as a way of alleviating congestion and reducing demand for water services infrastructure.

Consolidation policy had several additional influences:

- "over population" was a belief that the cities were growing 'too large' and were 'unknowable' meaning they were of a scale that was beyond the experience and desires of a large proportion of city dwellers. It was argued that the cities could not continue to grow as they had because the costs of service provision were too high. Historically services would be provided as and when the community could afford them. The increase in expectations that followed the war, were inflated due to arrival of migrants from Europe, compounded by the *defacto* privatization of infrastructure and the rapid increase in living standards during the first two post war decades.
- the view that 'too much land' was being used for urban areas - the implication being that rural production might suffer
- a view that there was excess consumption of precious natural areas and resources

These concerns were also articulated as leading to extensive cities (referred to in pejorative terms as "urban sprawl" related to the experience of cities in USA).

Part of the recent restructuring of the city occurred with the development of large scale retail centres away from the traditional suburban retail and commercial centres. The new centres were able to grow because of increasing car ownership and changes in retailing. Few were close to public transport nodes. Households, in many of which two or more members worked, found the 'new' centres convenient. Australian cities became increasingly 'car oriented'. The traditional Central Business Districts (CBD) retained their pre-eminence as locations of public services. The

centralizing tendencies of ‘white collar’ employment were also reflected in the location of commercial offices. The manufacturing sector experienced major transformations in the organization of production progressively adopting large scale ‘horizontal’ layouts of production processes in outer suburbs. Inner city manufacturing and storage firms transferred to outer suburban sites. Many of their vacated manufacturing premises and warehouses were ‘redeveloped’ to provide higher density dwellings. Some of the problems that over-centralisation of growth would bring were recognized in the post war plans for Sydney and Melbourne which provided for the development of sub-centres but were unrealized due to the triumph of the central city interests that influenced metropolitan development.

For a while it appeared that redevelopment of older inner areas could be achieved with significant savings in infrastructure services by making use of ‘surplus’ capacity in water services. Smaller family sizes were thought to reduce the demand for schools. In both cases the ‘savings’ were illusory.

The lack of investment in public transport as the cities grew and the increasing focus on the city centre led to increasing congestion. Simplistic analysis of the operation of the city led some to conclude that the problems of congestion could be solved if the form of development was changed to ‘encourage’ higher density housing that would reduce travel demand. But this too has proved to be a chimera.

The growth of cities

By the late 20th Century the major cities were burgeoning. Immigration programs had sped up the growth of the cities and the urban nature of the Australian economy intensified. The take up of the motor car had been accompanied by an increase in road investment. The general rise in living standards was reflected in increased standards and level of home ownership. Owner occupation increased from 52.6% in1947 to peak at 70.8% in 1966 but had fallen back to 68.1% in 2006 (ABS 2006). Infrastructure was increasingly expensive, made more so by the privatization of many of the basic services.

In varying degrees States adopted town planning that had been a condition of accepting Commonwealth post WWII funding for housing programs. In doing so they failed to ensure that a major proportion of the massive increase in land values that would follow from allowing the conversion of rural lands to urban uses would be captured to fund urban expansion. The provision of urban services shifted from the government to the private owners of housing via the companies which ‘developed’ estates. The massive increase in costs that followed fuelled an underlying pressure on house prices. Planning without social capture of at least some of the increase in land values resulting from the public process encouraged rent seeking. Housing prices increased and accelerated in the early 1980s with liberalization of the banking system. This was also the period in which neo-liberal views on urban development and investment in infrastructure services dominated discussion of urban planning and development issues.

The failure of planning systems to deliver the benefits identified in early plans led some States to adopt a physical determinist position claiming that the size of the cities was affecting city efficiency that could be achieved by increasing density. Little evidence was led to support the claims which became policy in many Australian

cities. Troy (1996) provided a comment on the dangers of pursuing such a policy arguing that it presented considerable dangers.

The concern over the “over population” could have been met by reducing immigration programs and/or by abandoning pro natalist policies but this would have run counter to those arguing that economic growth was desirable and the best/quickest way to achieve it was through population growth so such approaches were not pursued.

The massive extension of major metropolitan areas generated concern over the loss to urbanization of the ‘near city’ fertile areas that had been the sites of significant food supplies.

The changing relative economic power between the Commonwealth and States after WWII left the States under pressure to provide infrastructure in so doing they departed from the traditional model of municipal funding and development of such services leading to the corporatisation of the provision of urban services, especially water supply and sewerage.

The increase in incomes in this period enabled younger family members to ‘set up on their own’. The birth rate also fell. These processes found expression in increasing demand for smaller dwellings. The traditional distribution of dwelling sizes in the suburbs did not easily accommodate this new demand. Home ownership peaked in1966, as noted above, as the new demand for smaller dwellings to accommodate the new forms of independence and household formation appeared. The introduction of strata titles for multi-unit development in the 1960s was thought to provide opportunities for individuals and households to gain access to home ownership. But in fact, higher density forms of accommodation had lower levels of owner occupation: by 2006 semi-detached, row or terrace housing in the major cities had owner occupation levels ranging from 36.8% in Brisbane to 55.2% in Melbourne and for flats ranging from just 26.7% in Brisbane to 34.6% in Sydney (ABS 1933-2006).

It was argued that the traditional form of housing did not provide sufficient choice in the form of accommodation to allow the new ‘demographic’ to gain access to home ownership. The new form of accommodation, however, simply re-created a rentier class of property owners many of whom were able to take advantage of taxation provisions of ‘negative gearing’ to invest in higher density rental housing. It also resulted in lower space standards for households with small children. The newer higher density housing revealed higher per capita occupancy levels last seen when governments were forced to address overcrowding.

Water consumption

Consolidation policy was also justified out of a belief that increasing the density would reduce the deleterious environmental stresses it was thought would accompany increases in population and their associated energy and water consumption. A series of studies of domestic energy and water consumption in Australian cities (Adelaide, Sydney, Canberra for households in different forms of housing has exposed the lack of supporting evidence (Troy et al (2005),Troy *et al* (2006) yet policy makers and planners continue to claim benefits for cities in which the policy is pursued.

Although care must be exercised in making inter-city comparisons it is clear from the studies of water consumption in Sydney (Troy *et al* 2005) and the study of baseline water consumption in Canberra (Troy *et al* 2006) that there was no case for

concluding that increasing density led to reduction in water consumption. We should note that the educational and water management programs in Canberra have led to substantial changes in gardening practices that have significantly reduced consumption in conventional houses, thus reducing the differences in household consumption between different forms of housing.

This seems counter intuitive, but once the social determinants of consumption are taken into account it is not surprising:

1. The 'basic' per capita consumption of water for ingestion is small and roughly the same regardless of dwelling type, income or wealth;
2. The 'basic' per capita consumption for sanitation services is roughly the same regardless of dwelling type, income or wealth;
3. There may be some small reduction of water consumption for food preparation of households in higher density housing (but this may be offset by a greater propensity to 'eat out' – a question we do not pursue here);
4. Higher density households may use their dishwashers or clothes washing machines less efficiently because they do not wait for them to be full before using them;
5. The reduced 'competition' for use of bathing and showering in higher density housing due to smaller household sizes compared with a higher level of 'social' control in lower density housing resulting from larger household sizes leads to lower per capita 'bathroom consumption' in conventional housing. Conventional housing tends to be older and fitted with relatively small capacity hot water storage heaters that means the 'scarce' hot water resource has to be shared whereas the higher density housing tends to have 'instant' hot water;
6. Household garden practices have changed radically. Traditional gardens now use more mulching and composting that reduces water consumption;
7. Households in higher density housing, especially in multi-story flats, usually do not receive bills for their individual water consumption but one that is a 'share' of the total development, including the consumption for maintenance, cleaning and gardening. Households cannot reduce their account by reducing water consumption. They are more likely to behave in a way that creates a 'tragedy of the commons' by being less parsimonious in their consumption behavior thus increasing the total consumption;
8. High fixed charges for water services means that all consumers have reduced opportunities to reduce their consumption.

Water consumption in dwellings with 'instant/endless' hot-water supplies tend to have higher water consumption due to the need to run water until it warms up to acceptable temperatures. Once the shower or hand basin is 'finished' with the hot water line cools down before the next user. The 'wastage' of water is increased the longer the 'run' from the heater to the shower, etc and tends to increase energy usage in such dwellings. The use of 'mixer' taps in bathrooms and kitchens may also increase wastages of energy and water because they tend to be used with the tap in the 'middle setting' as the default use.

There is a common misconception that those who live in higher density housing do not water gardens therefore they 'must' have lower water consumption (IPART 2011). This ignores that fact that many high density dwellers maintain a variety of pot plants that are high water 'consumers', and that their developments often have

significant gardens and many have water using facilities (often in basement areas) such as car washes, gym or ‘workout’ spaces with showers, lap pools, saunas etc that result in significant water consumption ‘on site’ but ‘external’ to the apartment.

Energy Consumption

Energy consumption of development may be measured in two ways:

1. Embodied energy of the development according to its density.
2. Operational consumption of the different kinds of development.

We have little direct information about the levels of embodied energy for different types or densities of development but a study of ‘typical urban developments’ in Adelaide (Troy et al (2003)) and other studies indicate that the per capita embodied energy in conventional houses is significantly less than in high density dwellings. This differential is largely due the higher construction component of higher density housing. Such higher density development uses proportionately more building materials and components that are made with elaborately transformed materials such as aluminium, steel, concrete and glass compared with conventional housing.

Although higher density housing units usually have individual meters for electrical energy consumption they generally ‘share’ the energy costs of the installation, and maintenance of lifts, security lighting and mechanical ventilation of underground car parking between all dwellings in the development and thus have reduced opportunities for individual households to control their energy expenditure. Operational energy used in higher density housing is also often related to greater requirement for heating and cooling of apartments – especially those in ‘sealed’ buildings where households cannot dry clothing in ‘the open’ but rely on clothes driers – usually using electrical energy. Smaller households in higher density housing also tend to use cooking and dish and clothes washers less efficiently. Moreover, the propensity of those living in higher density housing to take longer showers increases energy consumption because of their greater use of hot water.

It is noticeable too that conventional houses are more likely to install solar hot water systems and also photovoltaic energy systems that reduce their reliance on fossil fuelled energy consumption. The lower level of investment in solar hot water and photovoltaic systems is especially the case in higher density housing that has a significantly higher proportion of renters compared with conventional housing.

Transport

The rationalization for consolidation policy included claims that it would reduce the need for investment in a variety of urban services. Some argued that higher densities would make it easier to develop public transport services that consequently would be better patronised. The falsity of this comfortable physical determinist assumption was exposed by Mees (2010 and 2013), but is promulgated by many who persist in ignoring the evidence.

The research evidence in relation to environmental or sustainability issues clearly carry little weight in formulating consolidation policy leading Neuman (2005) to conclude that the policy is built on a fallacy. He makes the point, usually lost in discussion over consolidation, that the arguments for such a solution are place-specific. That is, it is not appropriate to simply apply a standard approach to the form of the city when many of the issues of inefficiency and sustainability are affected by

the structure of the city and its topography yet are ignored by proponents of consolidation.

Those who argue that increasing density increases public transport usage ignore the fact that patronage of public transport historically was higher when car ownership was lower and jobs (including industrial employment) were more likely to be more centrally located. They also ignore changes in the patterns of employment and in the nature of industrial activity that have affected journey-to-work patterns. The claim that increasing density of living leads to increases in public transport usage is based on physical determinist notions, not on household behavior. It also assumes that the CBD will remain the major focus of the journey to work. The present pattern of voluntary journeys suggests that the range of household interests and activities cannot easily be met by use of public transport. Being able to choose when to travel where, with whom and in what conditions of comfort and security is powerfully attractive and made easier to succumb to because of the low level of investment in public transport. Proponents of high density development tend to ignore these aspects of social determinants of accessibility.

Social factors

There was a romantic notion that increasing urban density would lead to greater participation in urban life in the whole range of social and cultural pursuits in a city. The evidence is, however, that there is a higher level of disputation between occupants of strata title developments. Easthope (2012) suggests that the argument that increasing density increases community engagement is flawed.

Higher density housing was promoted as appropriate for those who wished to ‘down size’ their housing. It was assumed that having reached the point in their family life course when the children had ‘left home’ parents would be happy to move into a smaller dwelling – especially one with no gardens to maintain. While this may have been a factor with some households the reality was that many households were happy to remain in the ‘family home’ so that their children, grandchildren relatives and friends could visit. It is also evident that in many households the departure of children meant that one or other parents, especially those who had retired, could pursue gardening and other hobbies because they now had the ‘space’ to do so. Easthope, Tice and Randolph (2009) found that smaller households will not necessarily want to live in smaller dwellings. Moreover, Easthope and Randolph (2009) suggest that higher density housing is a ‘highly vulnerable form of residential ownership’ implying that the uncertainty surrounding strata titling of such dwellings introduces an element of insecurity for older ‘down-sizers’ that is not attractive. They point out that higher density housing introduces the possibility for social conflict not only within the apartment blocks but the potential threat they pose to ‘local amenity through deteriorating and poorly managed blocks.’ Easthope also found (2013) that retired strata owners on fixed incomes have difficulty in contributing to the maintenance and improvement of their schemes leading potentially to an increase in poorly maintained buildings bringing ‘to the fore the inherent tensions in the strata system between individual needs and collective responsibility.’

One frequent claim is that consolidation leads to increased housing choice. The experience however, is that not only is choice constrained but so is the space available leading to overcrowding levels not seen since the post WWII housing crisis.

Some States set development 'targets' for particular city areas and then accuse citizens of being selfish whenever communities opposed the policy as they perceive it to affect the quality or nature of their communities. Planning authorities established housing 'targets' for greenfield development and for local areas identified as being appropriate for 'redevelopment'. Local governments found themselves 'with housing targets that removed their discretionary powers over the control of the nature and quantum of development in their areas. Local authorities in some cities, such as Ku-ring-gai in Sydney, found themselves 'saddled' with massive increases in 'permissible' higher density housing that threatened the quality of their environment. This fueled a community perception that they were targeted for redevelopment because they supported political representatives different from the dominant group.

Elements of the real estate 'industry' frequently voiced support for such policies because it was felt that such policies provided new opportunities for investment. Newspapers carried 'feature articles' and provided Editorial comment supporting the policies. Planners repeated the refrain that increasing density was an unrelieved 'good thing'. Little attention was paid to the aspirations of the community or the effect of the policy on city efficiency or equity.

Local environmental concerns

The redevelopment of older inner areas is usually accompanied with loss of open space and or gardens leading to a loss of native bird life and contact with nature. In older areas experiencing redevelopment to higher density street trees are lost or removed. One of the most common reasons is the encroachment of parking near or under them. The loss of tree cover is thought to lead to an increase in peak summer ambient temperature of as much as 3C and a consequential increase in energy consumption for 'air conditioning' (Stone 2012).

Meta environmental concerns

Most densification occurs as 'redevelopment' of older inner areas of the city. Such areas have usually been developed with associated drainage systems built in earlier periods. In their original form a significant proportion of the rain falling on them was absorbed in the garden and open space surrounding the development. In inner areas developed in the late 19C housing and commercial developments also had rain water storage tanks that stored early rainfall. The absorption of rainfall and rainwater tank storage attenuated the peak rainfall runoff. As areas were incrementally redeveloped their hydrological character changed leading to increased runoff and rapid peaking in rain water runoff – this was especially the case in areas where the roof area of the new development was significantly greater that the old. Local drainage could not cope leading to local flooding in many older inner areas. The problem was exacerbated because the drainage systems were partially reduced in capacity because of the settlement of detritus in drain lines. The 'bugger thy neighbor approach' to management of storm-water runoff lower down the hydraulic gradient in cities in which storm water management was a local responsibility meant

that developments on the higher ground were not inclined to contribute to the resolution of the flooding problem.

Another meta environmental concern is that areas redeveloped to higher density are usually redeveloped on their existing street pattern. In inner areas this also means they have little open space redevelopment on a block-by-block basis. The private ownership of land and limited resources of local government and State government means that redevelopment to higher densities significantly reduces open recreation spaces for the normal physical development of children. The loss of 'greenery' is also known to detrimentally affect the health of the population.

Higher density redevelopment frequently leads to loss of ability to encourage households to participate in environmental programs such as recycling of domestic waste. Despite efforts to popularize local food production, it also leads to loss of opportunities for local production. It usually limits opportunities for recycling or on site re-use of waste water flows.

Conclusion

The real estate industry has led the charge to re-shape the form of Australian cities. The fact that real estate interests are among the loudest protagonists of consolidation should cause others to query their motivation behind cause. Political leaders responding to demands to facilitate redevelopment of older areas to higher densities have often done so on the advice of planners who have not explored the issue at any depth. Agencies like IPART have given energy to proponents of densification on the basis of assertions, not on research.

The notion that Australian cities would be made more efficient, lively places if they were massively increased in their density has become one of those dominant paradigms untested by research or rigorous discussion with the public. Contemporary planners have a preoccupation with the city centre and implicitly have a model of the city as a highly centralized entity dispensing with the views of the early post war planners who saw metropolitan decentralization as an important way to manage and direct growth.

Government and many corporations are highly centralized – the centralization of public functions during and since the colonial era has not helped development of a more decentralized administrative structure. Private corporations have also not taken advantage of new information technology to develop more decentralized organizations. This has been aided by the dominance of the central city influence on development decisions that have given preferment to 'sitting interests'. That is, consolidation is built on the notion of highly hierarchic administrative structures that have not responded to the opportunities available from new approaches to the management of information.

Australian cities have been inhibited in the development of their structure by the tyranny of small decision that favour the existing development and distribution of power. Prevailing political and economic forces produced centripetal forces that have prevailed over the centrifugal ambitions of those who drew up the original planning schemes.

It is as if planning is nothing. Wildavsky (1973) may well have been right after all.

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