Sydney Globalizing: A World City
in National, Pacific Asian and International Context

Report

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Preface

This report was written primarily to contribute to the socio-economic and geographic foundation of the Bauhaus Kolleg III on the SERVE CITY, held between September 2001 and September 2002 at the Bauhaus in Dessau, Germany. The work of the international participants taking part in the Kolleg is focussed on the consequences of the 'merging of the service economy with telematics' on architecture, urban planning, and the design of the wider life and economic space. The report gives an overview on contemporary urban development in Australia and its capital cities with special emphasis on Sydney. The development of Sydney as a global city is placed in the context of globalization and the emergence of global urban hierarchies. Both processes are closely interwoven with the rapid industrialization and urbanization in many Pacific Asian countries occurring over the past decades. Some of those newcomer countries now pursue determined policies to attract globalized knowledge-based, multimedia, and high-technology industries into newly designed or revitalized urban regions. Sydney's economic functions can then only be understood in relation to those of other important cities in Asia Pacific, which are, besides Tokyo, primarily Singapore and Hong Kong.

The following report is an enlarged and partly revised version of an earlier text (October 2001) concentrating on the general and national determinants of Sydney's changing economic functions and structure. The sections describing the rise of Pacific Asia (2.2), especially the emergence of Hong Kong and Singapore as world cities (2.3), and recent results of research on world or global cities (5) have been greatly expanded or newly added, and the summary section (7) was reworked.

This broad perspective allows a better understanding of the socio-economic change occurring on the different spatial scales: globally, on the level of cities or hierarchies of cities and on subsystems of those, like in the Asia Pacific region or the Pacific Rim, nationally, in the changing relations between Australian cities, and locally, in the differing socio-economic structures within and between Australian cities. Naturally, many issues have to be touched upon in a text with such a broad scope and not all of them can discussed in depth. Also, the rapid change in almost any part of our lives with the burgeoning information and communication technologies, and continuing rapid changes in economic and social life appears to decrease the half-life of much scientific work. It seems that many of the 'new realities' (like the presumed advent of the service or information society or the e-conomy) make 'old theories' obsolete. But in these debates there is often, as Walker (1985:81) warned, a 'tendency to confuse the contemporary with the new'. Though today's technological achievements are unprecedented or possibly revolutionary, many organizational forms and relationships, for example, be it in work, within or between firms, or even regions and cities, are not as unparalleled as often proclaimed. And this applies to the wider social, economic, and political realm as well.

The work of the participants of the Bauhaus Kolleg and their ambitious presentations were very stimulating for the writing of this report, so was the support by many of the Bauhaus staff, in particular Regina Sonnabend. As the author of this report I appreciated the opportunity to take part in their collective endeavor and to explore the rich theoretical literature and empirical work of many other workers in the field.

Rolf Stein

Contents

List of abbreviations

ABS	Australian Bureau of Statistics
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
CRC	Cooperative Research Center (Australia)
DFAT	Department of Foreign Affairs and Trade (Australia)
DISR	Department of Industry, Science and Research (Australia)
DOTRS	Department of Transport and Regional Services (Australia)
ESCAP	Economic and Social Commission for Asia and the Pacific (United Nations)
FDI	Foreign direct investment
GaWC	Globalization and World City Study Group and Network (University of Loughborough, UK)
GDP	Gross domestic product
GNP	Gross national product
ICT	Information and communication technologies
LGA	Local Government Area (Australia)
MNC	Multinational corporation
MSC	Multimedia Supercorridor (Malaysia)
MUR	Megaurban region (in Asia)
NIC	Newly industrializing country
NSW	New South Wales (Australia)
OECD	Organization for Economic Cooperation and Development
PAP	People's Action Party (Singapore)
R&D	Research and development
RHQ	Regional headquarter (of multinational corporation)
SD	Statistical division (Australia)
SIJORI	Singapore - Johore/Malysia - Riau/Indonesia (growth triangle)
SAR	Special Administrative Region (Hong Kong, China)
SLA	Statistical Local Area (Australia)

1. Introduction

This study presents an overview about spatial change in Australia, especially about recent economic and social change in its major cities. Since Sydney has emerged as a 'leading' city on many counts, a deeper analysis is made of Sydney's changing role in the national, macro-regional, that is Asian Pacific, and international context. In particular, Sydney's position in global urban hierarchies is assessed. Questions to be answered are: which cities are similar to Sydney, how can its role be characterized in relation to the cities that are doubtlessly at the top of global urban rankings, such as London, New York, Tokyo or Paris and what is Sydney's role in relation to other principal cities in the Asian Pacific region, that is primarily Singapore and Hong Kong?

Australia is a country that has been strongly influenced by the all-embracing globalization of economic activities, which has taken place over the last decades. For a long time Australia was a country, whose industries were highly protected from foreign competition and its social, employment and financial systems were highly controlled by state regulation. Most of these regulations have been dismantled and the country has undergone a period of rapid restructuring. Old manufacturing industries vanished, new industries developed mainly in the financial and producer services areas. In the new communication and information technology industries large numbers of jobs were created. In addition, an enormous amount of foreign capital was invested in Australia. The occupational structure of the workforce is undergoing rapid changes. In many industries the number of routine production workers declines, while the number of workers increases that perform high-skill, knowledge intensive tasks.

These tendencies of restructuring had a spatially uneven impact. Some cities were harder hit, and some gained more than others. Similarly, within cities some areas underwent painful economic restructuring and still suffer from high unemployment and low average incomes while others turned into places of affluence, being closely linked with the prosperous sectors of the national economy and international activities of domestic and foreign firms. A complex pattern of economic and social unevenness has evolved through these changes, within cities and also between Australian cities.

In the following *second* section, the background for these changes will be described. On a global level these changes are related to the transition from Fordism to Post-Fordism. Some remarks are made about the continued high localization of many economic activities, apparently contradicting the achievements made possible through modern communication, information and transport technologies. The Australian city system is then placed into the

wider macro-regional context of the Asian Pacific world, where in the fast growing, populous countries, whole new spatial phenomena are in the making, such as megaurban corridors, linking the megacities across many countries, and megaurban regions, developing between rural hinterlands and the large and spreading metropolitan areas. Hong Kong and Singapore are of specific interest since they are Sydney's main competitors. The development of these two city states and the peculiarities of their political and economic systems will be described, showing that they both have embarked on ambitious restructuring policies towards knowledge-based industries and services.

The *third* section identifies national trends visible in Australia regarding population, economy and politics. How Australia competes in the global race for the attraction of 'knowledge-based' and high-skill service activities is discussed.

The *fourth* section looks at the spatial specifics of restructuring as portrayed in the previous sections and contains a comparison of the development in Australian capital cities. It shows what employment changes occurred in these cities, concentrating on the service sector and in particular on producer and financial services, which have gained in importance over the last decades and whose expansion now fuels the growth of many inner city areas. The locational structure of headquarters of larger national firms and scientific activities as well added to that growth, which occurred in a spatially unequal way. This also applies to headquarters of international firms and to the activities of the culture industries that have come to be concentrated in Sydney.

Since the Sydney region emerges as Australia's dominant economic center in many matters, its role in the global city system is then assessed in the *fifth* section. Research done on global or world cities offers guidance on placing single cities within global hierarchies of cities. The hierarchical structures are, however, too complex to be represented by one-dimensional scales. This is a quickly progressing research field, covering contemporary urban development of global or world cities as well as exploring the relationships between globalization and the making of urban hierarchies. This research can be used to fill many gaps in a comparison of Sydney, Hong Kong and Singapore.

The *sixth* section addresses the question on how globalization impinges upon the inner socio-economic and spatial structure of the Sydney region. It summarizes a multi-dimensional analysis to show how communities (Statistical Local Areas / Local Government Areas) of Australian metropolitan areas can be classified into relatively homogenous clusters and how Sydney's communities differ based on social and economic criteria, which point towards their development perspectives.

Finally, in the *seventh* section, the results of the report are summarized and the advantageous and disadvantageous factors influencing Sydney's development are pointed out. Although future development cannot be predicted by a simple balancing of such factors in a turbulent world with rapid technological, economic and social change, some conclusions are drawn for Sydney's prospective role in the national and international arena.

2. Post-fordist restructuring and the rise of Pacific Asia

In the following section the socioeconomic, demographic and political background of urban development and change in Australian metropolitan regions will be described on two spatial levels. First, general trends of socioeconomic transformation and technological change that have occurred in 'Western' countries will be sketched using the vocabulary developed by regulation theory (2.1). This methodology (e.g. Boyer 1990, Lipietz 1997) allows a comprehensive and comparative analysis of societal restructuring in nation states and enables us to see changes in Australia over the past decades in the context of an economic crisis that has been felt by all large, industrialized countries since the mid 1970s. The socio-economic change that occurred in these countries is closely intertwined with the exceptionally successful economic development of many countries in Pacific Asia, starting with Japan in the 1950s, followed by the four 'tiger states' in the 1970s, and now by countries from Southeast Asia. A description of changes in the global economy caused by the rise of Pacific Asia is given (2.2), focussing on the larger 'neighboring' countries of Australia that are both competitors and markets for Australia. Singapore and Hong Kong deserve closer attention in the analysis of the economic development of Sydney, which has emerged as the leading metropolis in Australia as will be shown later, since on the macro-regional scale these are the cities that Sydney has to compete with for global attraction of talent and capital (2.3).

2.1 Fordism and Post-Fordism, globalization and localization

The mid-seventies brought a significant rupture in the economic and political environment in all large capitalist countries, ending the long post war boom. Changes in one of the most important factors for economic and social progress, the growth rate of gross domestic product (GDP) per employee, which indicates productivity growth, signaled a fundamental break. Taking the year 1973 as a reference point, it can be shown that growth rates in major countries dropped in the period after that year to about half their previous value (cf. Kommission der EG 1994). In most countries they did not reach their former level up until now.

In the European Union GDP growth rates averaged about 4% from 1961-1973, while they barely reached 2% between 1974 and 1993. In the US growth rates were about 2% in the first period and below 1% in the second. Japan reached around 8%, and thus the highest growth rates of GDP per employee from 1961-1973, but hardly 3% in the period thereafter. In

all these countries the real wages of employees and thus their living standards had grown largely in accordance with the growth of productivity before 1973. After 1973 growth of real wages also dropped significantly and lagged behind productivity growth in many cases. The 'golden age' of *Fordism* with its high stability and almost continuous economic and social progress had come to an end (Lipietz 1992) and a period of fundamental transformations began.

Fordism was characterized by three broad principles. It was a method of industrial organization, a macroeconomic structure, and system of rules offering secure employment conditions to workers and welfare state support to those in need (Lipietz 1997). As method of industrial organization Fordism implied a combination of the mechanization of production processes with a tayloristic division of labor, a strict separation of execution and planning or control tasks. The macroeconomic structure of Fordism guaranteed that productivity gains achieved in enterprises were distributed between capital and labor, allowing a rather permanent increase of profits and investment, but also of wages and living standards of employees. The system of work rules established in Fordism offered long-term contracts and stable ('rigid') work relations to employed persons and secured the well being of those segments of the population that could not participate in the labor force, like the unemployed or the elderly. The internal supply (mass production) and demand (mass consumption) was in this way balanced in many countries. External constraints were limited since international trade was still of minor importance, global financial transactions often state controlled.

For a number of demand side reasons (e.g. internationalization of production processes, price increases of primary products, saturation effects) and supply side reasons (e.g. slow down of productivity growth, profit squeeze, increase of direct and indirect labor cost) this system has experienced a crisis since the mid seventies. In many countries rates of unemployment increased to hitherto unknown levels, public budgets became unbalanced, social inequality started to increase. At the same time financial markets were deregulated and the globalization of economic activities accelerated.

Different countries developed along different *post-fordist* trajectories. These are epitomized by two opposite policies. One followed a path from fordist 'rigidity' to 'flexibility' in the wage relation, the other from 'direct control' to 'negotiated involvement' of workers. The US and UK tended towards the first model (Neo-Taylorism), which combines high flexibility in external relations, without offering many of the social benefits of Fordism. In European countries, like Sweden and Germany, high degrees of external rigidity were accepted, implying however a strong negotiated involvement of workers that is crucial for many

jobs in high quality, technologically demanding or knowledge-intensive economic activity. The conditions of that involvement were bargained in Sweden on the level of the whole society (Kalmarism) and in Germany on the level of industrial sectors. Japan took a middle route with strong dualism, strong involvement of workers organized at the (big) firm level, and a large small firm sector excluded from secure labor relations and high benefits providing very flexible work relations. In Australia, there is an ongoing discussion how to classify the country in the regulationist conceptualization (e.g. Treuren 1998).

With the demise of the old regulatory mechanisms, markets on a global scale were increasingly characterized by strong competition in which post-fordist production models proved more competitive than the fordist model, centered on price competition. In Post-Fordism the technological content of products, their quality and design attributes, as well as their symbolic 'meaning' acquire ever more significance (Lash/Urry 1994). Typically, post-fordist production models imply a shortening of product cycles and heightened differentiation of products. They tend to rely stronger on economies of scope than economies of scale. Internally, firms apply more flexible, computerized technologies; team work and an integration of functions spread. External relations of firms are increasingly characterized by vertical disintegration (outsourcing, downscaling, concentration on core competencies) and utilization of just-in-time systems.

In the new competition *comparative* advantages of production loose importance in relation to *competitive* advantages. While the first type of advantages are dependent on cheap inputs like lowly qualified labor or natural resources, the latter are created by qualified workers and depend on skill, knowledge and innovation. The growing importance of socially created factors has been explained from various theoretical points of view. Lundvall et al. (2001) characterize this new economic condition as the emergence of a *'learning economy'* where the success of 'national innovation systems' depends on the learning capability of individuals, organizations and regions. Porter (1990) advanced a 'diamond approach' pointing to four main and interrelated factors determining international competitiveness. (1) Factor input conditions, esp. specialized high-quality human resources and information infrastructure. (2) Strong competition between national companies, forcing them to invest in soft factors like training, marketing, brand names and research and development capacities. (3) Demanding local customers, forcing companies to produce sophisticated, unusual products that can attract demand globally. (4) The existence of related and supporting industries, forming *clusters of highly interlinked industries*. Another way of grasping the essence of present global market conditions has been proposed by the OECD (1996). Their approach highlights the close link

between economic growth and the knowledge intensity of production and calls for political support of change towards *'knowledge-based economies'*.

All these, in part related, concepts recognize the growing importance of information and communication technologies (ICT) for the creation of new products, new production technologies and also new services. Nevertheless, it is frequently stressed that competitive advantages are not only significant for modern industries (e.g. computers or biotechnology) but also for traditional industries (e.g. furniture, fashion and shoe wear). Even in the latter industries advanced industrial economies (in this case Denmark and Italy), characterized by high wages and little specific natural resources, can still be competitive on the world market (Storper 1997).

Two points should be added to this description of the structural changes that occurred in many western economies. One concerns the location of competitive production systems, the other changes in activity structures related to the heightened importance of knowledge, innovation and learning.

In spite of the undisputed continuing *globalization* of economic activity, much production remains highly localized in specific places, often in very prosperous regions (Storper 1997, Scott 1998, Enright/Ffowcs-Williams 2000). Examples for *localization* can be seen in industrial districts (e.g. in northern Italy, Denmark and Germany), 'company towns' (e.g. Toyota City, Seattle with Boeing and Microsoft), metropolitan business centers (New York, London, Hong Kong) or agglomerations of high technology firms (e.g. Silicon Valley, Route 128 in Cambridge, Sophia Antipolis in France). In such regions, a high degree of localization is often closely correlated with the creation of enduring competitive advantages.

The reasons for this persistent, strong tendency to geographical concentration, which appears incongruous in the face of the advances made possible by new information, communication and transportation technologies, are manifold. Three important reasons, besides the common agglomeration economies, are the following. Spatial proximity reduces transaction costs (e.g. for negotiating and monitoring contracts) esp. if non-standardized information and goods are exchanged. 'Cultural similarities, community cohesiveness, interdependence of local firms, repeated interaction, and familiarity allow firms to trust their counterparts' (Enright/Ffowcs-Williams 2000:10). Such conditions can further reduce transaction cost and permit interactions that otherwise would possibly not be conducted at all, for instance the exchange of critical information concerning market conditions or innovations. Further, the close spatial association of firms allows labor pooling, higher degrees of specialization and the use of tacit knowledge of employees (Lundvall et al. 2001), which increases the efficiency of la-

bor where firms agglomerate and is substantial for many qualified manufacturing and service occupations.

With the shift of production models towards post-fordist principles and the emergence of new technologies based on ICT, tendencies of change in *sectoral* and *occupational* structures were strengthened. While the first category describes *what* is produced, the second relates to *how* production is performed. Thus, the share of services widened in the composition of national products. And in the composition of employment, the relative share of transformative, manual, or direct labor diminished and the share of informational, knowledge-based, organizational work increased. Numerous studies have been undertaken to analyze this shift, but as yet no commonly accepted or satisfactory framework has emerged that incorporates all these changes (Marshall/Wood 1995).

Producer services, transaction activities, and cities
To overcome a number of weaknesses in conventional approaches, the application of 'new institutional economics' to classify economic activities (Stein 2002) might offer a promising alternative. 'Applying insights from 'new institutional economics' to classify economic activities or occupations avoids some problems for which conventional classifications of services and particularly producer services have long been criticized. In institutionalist thinking the mixture of organizational forms such as market, hierarchy or network in an economy is mainly determined by transaction costs, which can in turn be correlated to specific 'transaction activities'. Typical transaction activities can be identified in markets and in other institutional arrangements, allowing the classification of real economic activities, occupations or firms as transactional or not. Many other commonly applied labels like information related activities appear comparatively imprecise. This categorization and differentiation sheds new light on discussions about spatial development, from the world city debate to claims about the presumed key role of high-tech occupations in metropolitan areas. It can be argued that transactional occupations, especially those requiring higher qualifications, will typically be highly concentrated in larger agglomerations. In contrast, many non-transactional occupations though requiring high qualifications and usually also regarded as basic for metropolitan economies, like parts of R&D, are not necessarily concentrated there.'

A widely used classification for the first category is Singleman's (1978) classification, distinguishing sectors into two industrial and four service sectors:

- *extractive industries*: agriculture and mining
- *transformative industries*: manufacturing, utilities, construction
- *distributive services*: wholesale and retail trade, transportation, storage, communication
- *producer services*: insurance, banking, engineering, business services
- *social services*: public administration, defense, health, welfare, education
- *personal services*: domestic, repairs, recreational, entertainment.

Since this classification is broadly accepted and it represents a kind of 'smallest common denominator' of classifications in much social and spatial research, it will consequently also be used in this report. In advanced Western countries, a continuous shift in output shares from

extractive and transformative industries towards services sectors can be observed, in which social and producer services show particularly fast growth.

Among occupation-based classifications, an approach developed by Reich (1992) has been widely used that dismisses the service and non-services dichotomy, common in most literature. Reich crystallizes occupations into just three basic categories:

- *routine production work*: low-skill jobs, threatened by international competition and automation, mainly in manufacturing, also in back offices
- *in-person services*: low-skill jobs, handling persons directly, or goods, not threatened by international competition or automation
- *symbolic-analytic services*: high-skill jobs, individually handling information (problem identification and solving, strategic brokerage), not threatened by automation, in general advantages for advanced industrial countries

Typically in western countries the share of the first type of workers is decreasing rapidly, while the share of 'in-person service workers' is rather stable or even increases. The share of 'symbolic-analysts' is rising continually, since those represent the highly qualified workers of the advanced sectors and those in the demanding positions that carry out problem-identification, problem-solving and brokerage.

2.2 The rise of Pacific Asia and new forms of urbanization

With the structural shifts described above, a *geographic* shift in economic activities on a worldwide scale took place. Old industrial nations and regions of the western world lost shares in world economic output at the expense of first Japan and then the ´new industrializing countries´ in the former 'third world'. In the first round of export-led industrialization in the seventies, a number of countries in South and Central America and in East Asia took part in this process. From the eighties to the turn of the century, however, the focus of the global 'new' industrialization has shifted towards East and Southeast Asia. Increasingly, the economic ties built around manufacturing and capital investment in that region are supported and supplanted by the exchange of services, be they related to financial flows, touristic travel or producer services. With the extraordinary growth and structural change in Pacific Asia new geographical entities came into being like *megaurban corridors* or megaurban regions some of which overlap with the *world* (or *global*) cities Hong Kong and Singapore. These two cities

are of particular interest since Sydney has to compete with them on the global and macro-regional, Asian Pacific[1], scale.

The 'flying geese pattern': shifting centers of industrialization in Pacific Asia

The economic transformations and growth in Pacific Asia over the past decades has often been described with the image of 'flying geese': one leading nation took off for a strong and long lasting economic development process, other nations followed and step by step took over the former role of that leading nation (Lo/Yeung 1999). Japan was that leading nation, which was followed first by a group of (at that time) newly industrializing countries (NICs) including South Korea, Hong Kong, Taiwan, and Singapore and then by next group including the ASEAN countries (Association of South East Asian Nations), hence Indonesia, Malaysia, Philippines, Singapore, Brunei, Vietnam, Myanmar (Burma), Laos, and Thailand. With only about 50% of the US population, Japan reached roughly 8% of the GDP of the US in 1960. By 1970 that percentage of GDP had grown to 20% and in the late 1980s it was 60%. With rising labor costs Japan started shifting manufacturing activities into the Asian NICs and became one of the leading nations in foreign capital investment. These NICs shifted their own production first towards light manufacturing, later to durable consumer and capital goods, relocating their own standardized manufacturing then into ASEAN states. Thus in ASEAN states, raw material exports were successively replaced by manufacturing exports. And manufacturing is now continuously upgraded in many of those countries.

The shifting shares of world export of merchandise goods over the past 50 years give an indication of these processes (Tab. 2-1). Japan, insignificant as an export nation in the early 1950s, has almost continuously extended its share of exports. The North American shares, conversely, declined from the 1950s to the 1980s and only slightly increased lately. Australia and New Zealand also have lost shares in world exports almost progressively. In the year 2000 their share approached one third of its size in the year 1953. Uninterrupted growth

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[1] There is no commonly accepted expression for the geographic area in which the three cities that this report concentrates upon, Hong Kong, Singapore and Sydney, are located. Usually the terms *East* and *Southeast Asia* are applied, where the first includes China (with Hong Kong), Japan, the Korean states and Taiwan, and the latter all the countries 'between' Thailand, the Philippines, and Indonesia (with Singapore on the tip of the Malay peninsula). The countries of that whole macro-region are also sometimes subsumed into *Pacific Asia*. Since none of those terms covers Australia, which is geographically and historically separated from these Asian macro-regions, the term *Asia Pacific* is used in the following text if the whole area is meant. Asia Pacific then covers East and Southeast Asia and Australia and points towards Australia's 'pacific' location. To describe the area also including the countries along the American seaboard of the Pacific, from Alaska down to Chile, the term *Pacific Rim* has gained wider use in recent work, and will also be used in this report. None of these expressions are undisputed, beginning with the term 'Asia' derived from the Assyrian word for 'morning land' and implying a Western view on the 'Orient' to the now fashionable talk about the 'Pacific Rim'. Cummings (quoted in Forbes 1997) denounces this as 'rimspeak' because it is about an only imagined and in reality meaningless category.

in export shares, however, is recorded for the 'Six East Asian traders' from the 1960s to the year 2000. And China started to increase its share constantly in the 1980s.

Table 2-1: Shares in world exports of merchandise goods[a]
(in % for selected countries/regions and years)

	1953	1963	1973	1983	1993	2000
North America	24.2	19.3	16.9	15.4	16.8	17.1
Western Europe	34.9	41.4	45.4	38.9	43.7	39.5
Japan	1.5	3.5	6.4	8.0	10.0	7.7
China	1.2	1.3	1.0	1.2	2.5	4.0
Australia/New Zealand	3.2	2.4	2.1	1.4	1.5	1.2
Six East Asian Traders[b]	2.7	2.4	3.4	5.8	9.7	10.5

Source: WTO News, 2001 Press releases, Press/249.

a) Gross Domestic Product less services and construction
b) Hong Kong, South Korea, Malaysia, Singapore, Taiwan and Thailand

A similar pattern of change between these countries and groups of countries can be discerned for the shares world imports (cf. WTO News, 2001/249.) These shifting patterns of international trade indicate processes of industrialization in Pacific Asia that were accompanied by deindustrialization in North America and Europe, primarily in old industrialized cities and regions. Multinational corporations (MNCs) from these countries played an important part in this global shift. Japanese MNCs, of course, also took part in that process. In general, strategic, financial and top management functions, were retained in the home countries of the MNCs, while standardized activities like assembly were shifted abroad with significant repercussions on home country employment structures. Meanwhile, the Asian NICs have developed their own MNCs following spatial and organizational restructuring strategies similar to those from former core countries.

Old industrialized countries like the US and West European countries now have major competitors in Pacific Asia, the same applies, even to a stronger degree for Australia, because of its spatial proximity to these countries, its comparatively weak industrial base and its rather one sided integration into international exchange in services (see section 3). With this global restructuring of economic activities Australia, once one of the wealthiest nations in the world, has fallen behind some of the competitors in the region, at least if the usual indicator for a country's average 'productivity' is used, gross domestic product (GDP) per capita. Both city states, Hong Kong and Singapore, now have a higher GDP per capita than Australia. This comparison is, of course, of limited significance since two city states are compared with a huge country. But Australia's population is highly concentrated in very few large urban centers, which makes the comparison less unequal, and Australia's position behind these two city states is of rather recent date as revealed in Tab. 2-2.

Table 2-2: GDP per capita (in US $)

	1980	1990	1995	1999
Hong Kong	5628	13111	22618	23655
Singapore	4862	12142	24031	21837
Australia	9747	17156	19436	20254

Source: UN ESCAP, *Economic and Social Survey of Asia and the Pacific 2001*; UN Statistics Division, *Indicators on income and economic activity*.

In 1980 Australian GDP per capita was much higher than the GDP per capita of Hong Kong and almost double that of Singapore. Up until 1990 Australia retained its lead, but already in 1995 it had fallen behind both Hong Kong and Singapore, and it remained there in 1999. Though these data may be influenced or distorted by statistical errors or exchange rate fluctuations (esp. between 1995 and 1999), they still indicate a fundamental economic reordering to the disadvantage of Australia in relation to the two city states.

East and Southeast Asia remains a powerhouse of the global economy; after the 1997 financial crisis most countries returned to medium or high growth rates of GDP (Tab. 2-3), which is the central indicator for the change of economic growth and thus closely related to average economic well being in a country. Though starting from strongly divergent levels of development, as evident from GDP per capita values, most 'developing' countries in the region now reach persistently higher growth rates than the developed ones, like Australia and in particular Japan. Hong Kong and Singapore might be viewed as exceptions to that rule, combining relatively high per capita incomes and relatively high growth rates. In recent years it is especially China that records high growth rates and will probably shape the future development in the region decisively.

Australia is under double economic pressure under these circumstances. With their huge populations and low per capita incomes some countries, especially Indonesia and the Philippines and lately also China, compete with Australia as a location of standardized production. The extremely low labor cost and oppressive labor regimes in many of those countries puts the Australian high volume manufacturing with little skill requirements under severe threat of relocation.

At the same time other countries in Pacific Asia have emerged as competitors for production with higher technological and skill requirements. Besides Japan, these are primarily South Korea, Taiwan, Hong Kong, and Singapore. A recent report of the APEC (2001), based on empirical indicators for four factors indicating a countries' strength in the knowledge-based economy, shows that 'high performing Asian economies' like South-Korea and Singapore lag behind Australia in the quality of the 'business environment' and 'ICT infrastructure', but reach similar indicator values for their 'innovation systems' and for 'human re-

source development'. Some of the fast growing Asian countries with low income levels, though still performing in general worse than Australia in the four factors, have nevertheless also engaged in ambitious programs to upgrade their innovative capabilities. Thailand and Indonesia, for example, built up new telecommunication facilities in public-private partnerships.

Table 2-3:
Population, gross domestic product and real economic growth in Asia Pacific
(selected countries)

Country	Population 1998 (in Mio.)	GDP per capita 1998 (in US $)	Real GDP growth (in %)			
			1999	2000	2001 (estimate)	2002 (estimate)
Indonesia	214.8	478	0.2	4.4	5.0	5.7
Lao Peop. Dem. Rep.	5.4	250	7.3	6.5	6.9	7.2
Malaysia	23.6	3317	5.4	8.2	7.0	7.2
Philippines	77.1	894	3.3	3.7	3.4	3.8
Thailand	63.0	1890	4.2	4.5	4.6	4.6
Viet Nam	79.2	336	4.8	6.7	7.0	7.0
China	1285.0	777	7.1	8.0	7.8	7.7
Republic of Korea	47.1	6956	10.7	9.2	5.1	5.8
Taiwan Prov. of China	22.0	12330	5.7	6.4	5.8	5.9
Singapore	4.1	24577	5.4	10.1	6.3	6.3
Hong Kong SAR	6.9	24581	3.0	9.7	6.1	5.2
Australia	19.4	20125	4.7	4.3	3.4	3.4
Japan	127.3	29956	0.2	1.6	2.0	2.4

Source: UN ESCAP, *Economic and Social Survey of Asia and the Pacific 2001*; UN Statistics Division, *Indicators on income and economic activity;* Asian Development Bank Asian, *Development Outlook 2001*.
*) Population: data for 1999; income: per capita gross national product.

And Malaysia for instance, with a only half the per capita income of South Korea, invests enormous resources into up-to-date infrastructure for ICT and human capital striving to establish a huge production complex for knowledge-based industries and services. With the ongoing realization of the Multimedia Super Corridor (MSC) stretching across an area of 15 times 50 kilometers between the capital Kuala Lumpur and the international airport, Malaysia has embarked on an impressive policy to upgrade its technological infrastructure (Corey 2000). The MSC is aimed at concentrating national and international capital, labor and knowledge to create a 'multimedia utopia' as stated on the MSC's website (www.msc.com.my). The MSC will be endowed with top modern information and communication infrastructure and contain two newly designed 'intelligent cities' Putrajaya and Cyberjaya. Putrajaya is designated to be a garden city for electronic government, housing the top of the state's administration, giving employment to almost 80000 employees. Cyberjaya will be the site for a Multimedia University and is planned to be high quality living community with access to surrounding rain forests. By early 2000 already 315 ICT based firms, including a number of global players of that

sector, had opened operations in the MSC. The MSC accordingly appears to have the potential to develop into a cluster of sophisticated high technology production and services.

International trade, especially trade in services (e.g. in finance, producer services, tourism) is, of course, one of the main economic foundations for the development of large cities, such as Sydney, and it is then obvious that its economic well being is deeply influenced by the fundamental transformation occurring in Pacific Asia. On the level of urban regions, primarily Singapore and Hong Kong can be seen as the competing cities, because of the relative spatial proximity and comparable level of economic development.

Distance and transportation cost, technologies and transactions

To put 'relative spatial proximity' more concretely, it should be kept in mind that Sydney's geographic distance to Hong Kong in the northwestern direction is (as the crow flies) about the same as Hong Kong's to Moscow, or Moscow's to New York. Each time roughly 7500 km have to be bridged. In the northeastern direction from Sydney the same travel distance does not suffice to reach Hawaii and only adding the same distance again finally takes you into the middle of mainland USA, like to Minneapolis/St. Paul in its North.

These long distances translate into high transportation costs for goods, particularly when small batches are transported increasing *unit* costs, or when changing and complicated specifications for goods are given. Both conditions apply more and more under post-fordist restructuring of production. To not overstate the cost-increasing effects of distance, it should also be pointed out that unit costs for transportation often do not correlate in a simple linear fashion with distance. Frequently, an asymptotical function exists between unit cost of transportation and distance (Scott 1988). In such cases unit costs hardly change once a certain threshold of distance is passed. Nonetheless, in service industries like tourism or in producer services where *people* have to travel, longer distances translate into higher 'expenditure' of a very special rare good: time, which is particularly valuable when highly qualified personnel is involved. The recent advances in transport, information and communication technologies have only selectively reduced these impediments for economic exchange since many kinds of transactions continue to require direct personal contact of human agents. This applies naturally for tourists, and, more importantly for urban development, in many cases also for 'knowledge-workers'. When high value, confidential, complicated or non-standardized information is exchanged, as for instance in cases of bargaining in international trade or mergers and acquisitions, complicated law cases between enterprises or contractual arrangements in global culture industries. Personal contacts between human agents are often indispensable in such situations where transactional conditions are problematic.

Emerging new spatial forms: megaurban corridors and megaurban regions

The strong economic and population growth that occurred in Pacific Asia is inexorably connected with strong urbanization tendencies. Urbanization was spatially highly uneven and brought various phenomena into existence such as megaurban regions and megaurban corridors (Douglass 1995, Douglass 2000, Forbes 1997, Lo/Yeung 1999 ,Yeung 2000).

On the international level the creation of a *megaurban corridor,* consisting of the major coastal urban regions of Pacific Asia, is under way. These urban regions are increasingly connected with transportation (air, surface, water) and telecommunications links for exchange of goods, services and organizational activities. The local systems of production, trade, finance and consumption are thus integrated stronger with each other and into the global sys-

tem. Within this megaurban corridor, three major groups of cities can be discerned, forming clusters of highly urbanized regions. These subdivisions, however, are not unequivocally agreed upon since there are no commonly accepted criteria how to subdivide these groups of cities. Forbes (1997) suggest three groups of cities:

- The first megaurban corridor is the *Bohai Rim region,* drawing together the large urban regions of northeastern Asia: Tokyo, Osaka, Seoul, Pusan, Beijing, Tianjin and Shanghai (Fig. 2-1). Occasionally, this corridors is further split up, Bejing, Seoul, and Tokyo, for example, are seen as forming one single 'ecomenopolis' labelled 'Beseto'.

- *Southern China and Taiwan*, form a second megaurban region consisting of two components. The one including Hong-Kong, Guangzhou, and the Zhujiang River delta region and the other Taipei and the large cities in mainland China such as Xiamen (Fig. 2-1).

- And there are the large city regions of *South-East Asia,* representing a third megaurban corridor, comprising cities like Bangkok, Kuala Lumpur, Singapore, Medan, Palembang, Jakarta, and Surabaya (Fig. 2-2).

Figure 2-1: Distribution of major cities in Eastern Asia
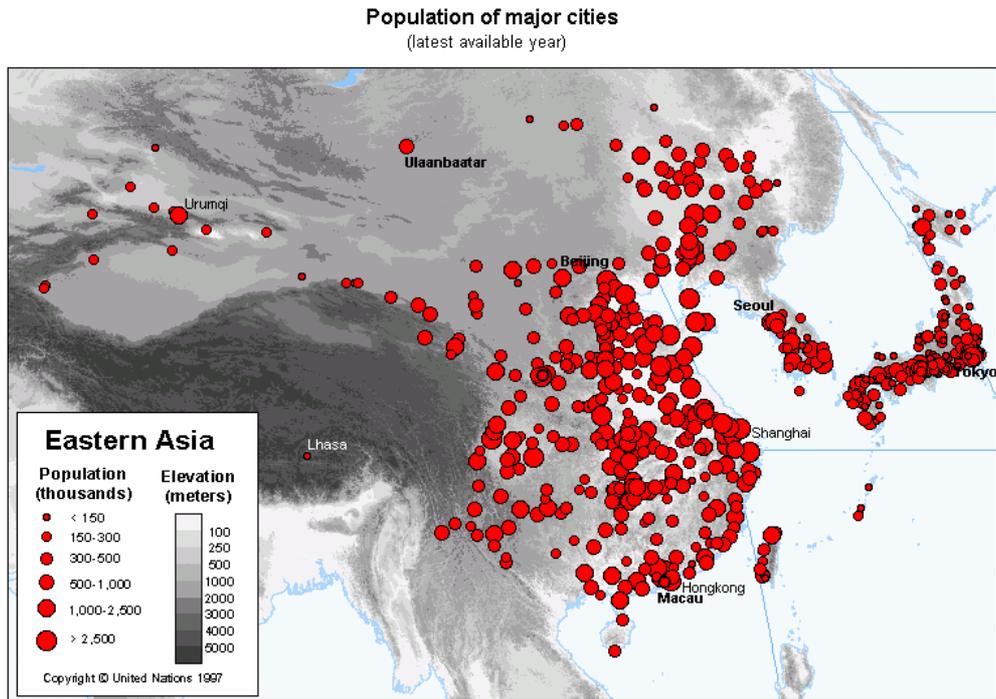
Population of major cities
(latest available year)

Figure 2-2: Distribution of major cities in Southeastern Asia
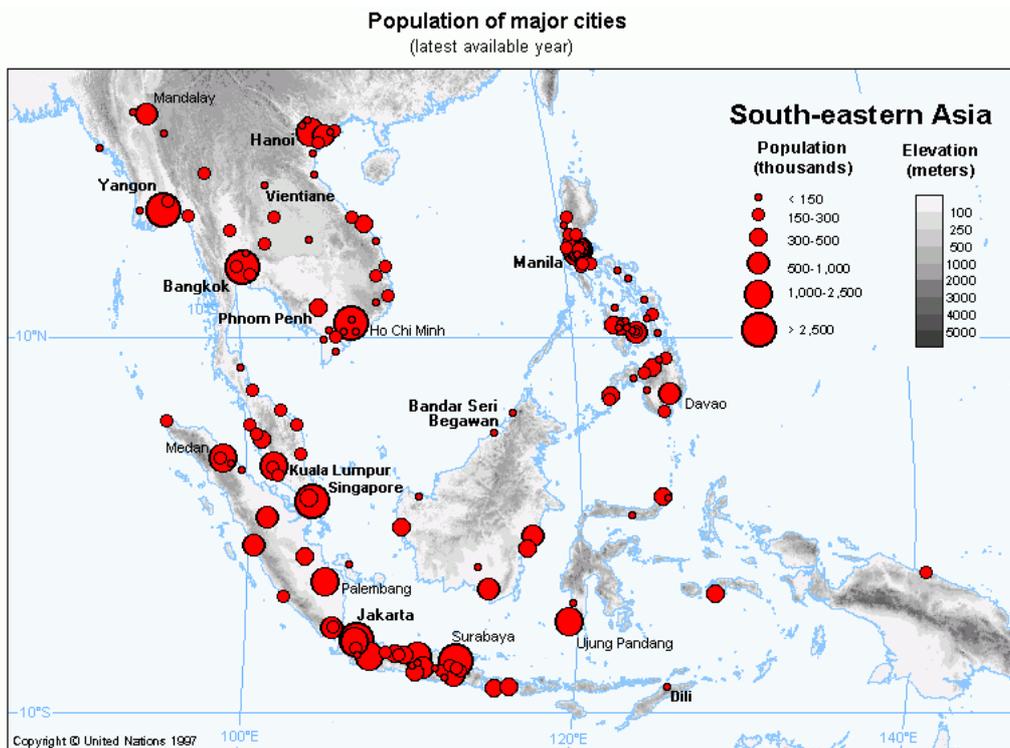
Population of major cities
(latest available year)

Source: www.un.org/Depts/unsd/demog

Lo and Yeung (1999) advocate a smaller scale division into 'growth triangles' spreading across the fast developing coastal areas of Pacific Asia (Fig. 2.3). Hong Kong, Guangzhou and Taiwan then form the Southern China growth triangle. Singapore is part of the SIJORI growth triangles enclosing parts of Johor (Malyasia) and parts of the Riau islands (Indonesia).

Figure 2-3: Growth triangles in Pacific Asia

Source: http//itri.loyola.edu/em
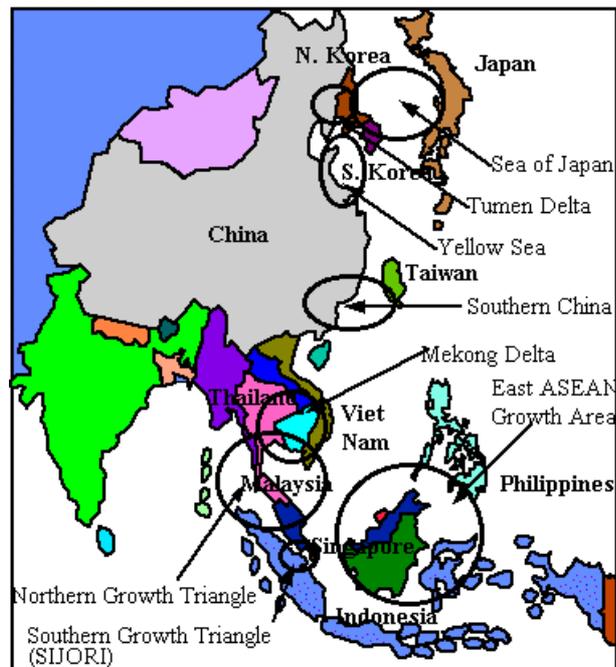
On a yet smaller spatial scale *megaurban regions* can be identified that typically develop around one or two large cities. McGee (1991) and Macleod/McGhee (1999) described how in Pacific Asia metropolitan centers were extending along intermetropolitan traffic corridors beyond the traditional agglomerations of core and suburb into rural areas. Such regions were first labeled 'desakota regions' or' extended metropolitan regions' and later *megaurban regions* (MURs), alluding to the rapidly intensifying and spreading daily interactions between the non-rural activities in metropolitan areas and rural hinterlands, which are often located farther than 100 km away from metropolitan centers.

Megaurban regions in Pacific Asia can be arranged in to several groups according to their number of inhabitants[2]. There are the extremely populous MURs such as Tokyo (39.5 Mio. inhabitants) or Shanghai (37.5). Some MURs in China approach the 30 Mio. inhabitants level, like Hong Kong forming an integrated MUR with Guangzhou (28.0) or Beijing (26.3). A number of MURs range between 15 and 20 Mio. inhabitants such as Seoul (20.2), Osaka

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[2] Cf. Douglass (2000) with figures for mid 1990s.

(16.8), Jakarta (17.1) and Manila (16.0). And there are the smaller MURs housing populations below 10 Mio. inhabitants, including Nagoya (8.7), Taipei (7.9), Kuala Lumpur (4.2) and finally Singapore (3.0), being the least populous region listed.

'The importance of these urban agglomerations cannot be overstated' as Douglass (2000:2320) simply puts it. The MURs of Pacific Asia represent a spatial outcome of contemporary globalization and continue to grow much faster than their national populations, concentrating ever higher shares of national populace within their confines. Many of these regions now account for half of their countries' national product which leads to a sharpening polarization between these booming, large, and densely populated urban regions and remote, stagnating areas. Both trends, concentration of population and economic activities, stand in marked contrast to spatial development trends in Western industrialized countries where deconcentration is the prevailing tendency. In Pacific Asia, however, concentration centered on one or a few MURs continues in almost all countries that strengthen their ties with the global economy.

Some of these MURs transformed over the past decades into *transborder regions* by developing intensive regional economic ties that cross national boundaries, taking advantage of differences in work regulations, labor and other input cost. Typically, flows of investment and industrial inputs are freed from restrictions in cross border exchange, while flows of workers remain controlled by governments.

- Singapore is one such example from where labor intensive production was shifted into the neighboring state of Johor (Malaysia) and partly to the Riau Islands of Batam (Indonesia) where the latter also serve as new space for recreational, leisure and housing uses. In that way Singapore's capital, technology and management resources can be combined with the abundant labor and land resources of bordering states. The emerging increasingly interwoven region is also labeled the 'Sijori growth triangle' in other conceptualizations as mentioned above.

- Hong Kong, which now has the status of Special Administrative Region in China, has for a long time deepened and extended its economic exchange with bordering regions, mainly the Guangdong province. First labor intensive production was deployed into the Special Economic Zone of Shenzhen, right across the border to mainland China, where tax holidays and state financed infrastructure are granted to investors. Later relocation and economic relations were extended further into the Pearl River Delta. The whole region (Southern China growth triangle) now draws almost 100 millions inhabitants into its orbit. Hong Kong remains the center for fi-

nance, management and producer services, linking the region with global markets, whereas standardized manufacturing is carried out on its periphery, often under precarious working conditions.

Intertwined with the transformations that can be observed on the interregional level (the centralization tendencies) and the intraregional (megaurban) level, the cores of many large urban regions have been linked closer together and into the world network of cities. A new functional system of world cities has thus emerged within Asia due to the dramatic growth in many countries. In this global system the cities are arranged hierarchically according to the functions that cities perform, less according to their size. Cities networked with this global system are frequently called world or global cities and research focussing on their emergence, the structures of the global urban system and the positions of Sydney, Hong Kong, and Singapore therein and will be dealt with in detail later (section 5).

2.3 Hong Kong and Singapore: from colonial status to global significance

In the following an overview over the development of Hong Kong and Singapore is given focussing on the common and specifics traits of their economic growth and political development. The spatial and socio-economic development of Australia, its capital cities and in particular Sydney, will the be analyzed in the succeeding sections 3 and 4.

History, politics, and economics: common legacies, different outcomes

With the colonial expansion of the British empire, Hong Kong and Singapore became important cities for the trade between Asia and the Western countries. Before they had both been small fishing villages. Prior to British colonization, other cities in Asia had key functions in trade, like Canton (Guangzhou) in South China and Malacca on the Malay Pensinsula. They were focal points in a network that spanned the cities of China, Japan and Southeast Asia from the seventeenth century onward. With the expansion of colonial trade in the early nineteenth century, the British military and companies were in need of settlements that were located at strategic locations and had a natural deepwater port, to serve as entrepôt for trade between Asia on one side and Europe and North America on the other (Chiu et al. 1997).

Modern Singapore (from Sanskrit Singapura: lion city) was founded in 1819 by Sir Stamford Raffles as a trading and military post on the southern part of the island (Fig. 2-4). With its strategic location on the tip of the Malay peninsula it could serve as base to protect

British trade with China in case of war and, at the same time, it was intended to outflank the Dutch interests at Malacca, further north on the coast of the peninsula. It quickly developed into a trading center for Southeast Asia distributing local agricultural products to Europe, North America and China and allowed the British to gain control over Malaya. In Malaya tin mining and plantations of the rubber plant were expanded for export. Laborers, mainly 'coolies' from Southern China, were brought into the country to serve as cheap labor. Both flows went via Singapore, boosting its wealth.

Figure 2-4: Map of Singapore

Source: www.lib.utexas.edu/maps

Hong Kong was supposed to fulfill similar functions when British soldiers landed on Hong Kong Island (Fig. 2-5), which was handed over to the British 'for ever' by the Chinese Emperor in 1842 after the British victory over China in the first 'opium war'. Britain needed a location to serve as entrepot for its trade with China. Goods and again also labor, the coolies for the southern possessions, were handled through Hong Kong. In the mid 1800s there was still strong competition from Shanghai and trade into China increased only slowly because purchasing power in China was limited. From 1860 onwards, a massive immigration started into Hong Kong because of political upheavals in China. With the British acquisition of the Kowloon Peninsula and the New Territories in 1898 (for a 99 year lease period) Britain consolidated its military control and political dominance and a rapid improvement of maritime infrastructure facilities began.

Within a 50 year period the number of ships landing in Hong Kong and trade volume via Hong Kong had virtually exploded. In 1850 about 1100 vessels had transported about 0.4 Million tons of total tonnage into Hong Kong. In 1900 the number of vessels reached about 11000 and the tonnage 14 Mio. In the early 1920s Hong Kong had, measured by total tonnage, developed into one of the mains ports of the world, outstripping even London and New York. Parallel services around trade, such as shipping, banking, and insurance, grew and Hong Kong emerged as the center for such services for the Chinese coastal region.

Figure 2-5: Map of Hong Kong (SAR)
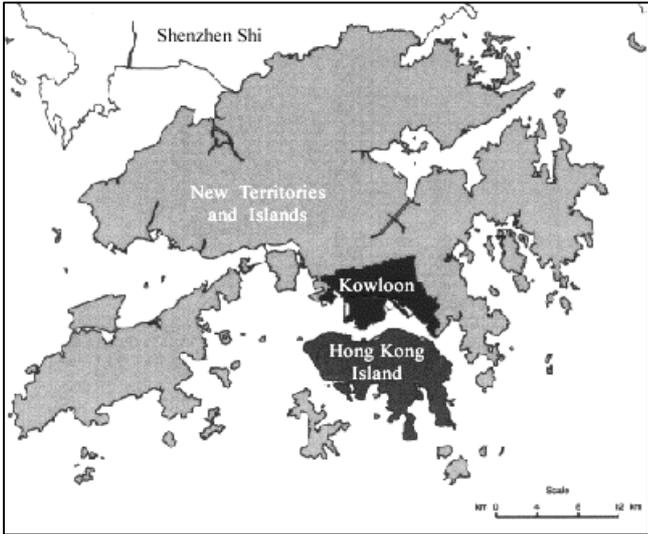
Source: www.info.gov.hk

The British rulers were rather tolerant of indigenous business foundations (as opposed e.g. to the Japanese in Taiwan) and a complementary structure of ownership and control came into existence in Hong Kong and Singapore among European (mostly British) and indigenous (mostly Chinese) business men. Though Europeans dominated, Chinese merchants and other business people developed an intricate network mainly directed at regional markets. But a number of large Chinese firms also emerged, e.g. in import-exports, mining, finance and the plantations sector. These business networks proved of decisive value in the later industrialization of both city states. Adding to this, the communication and transportation infrastructure built up during the colonial era and the rather efficient administrative institutions gave Hong Kong and Singapore a lead in relation to other cities in Pacific Asia.

In the 1950s and 1960s Singapore and Hong Kong started to develop along divergent economic and political trajectories. Economically, Singapore continued to be mainly dependent on entrêpot trade and related services. Export manufacturing contributed only little to its economic base and the small manufacturing sector was oriented towards internal markets.

With the political turmoil before and shortly after independence, foreign investors were reluctant to invest in the country. Social problems at that time were aggravated with strong population increases and high unemployment rates, especially for the young. In 1959 the British parliament passed a law giving internal self-governance to Singapore, where some years before the People's Action Party (PAP) had been founded striving for autonomy. After internal conflicts a moderate group emerged as the dominant force, striving for an authoritarian state combined with a well-developed social system. While Singapore was progressing towards becoming an independent nation, Hong Kong remained under British rule, represented by a Governor elected by Britain. Plans by the British to liberalize the crown colony were quickly abandoned after the Communist party had come to power in China. Already during the Japanese invasion of China, large inflows of refugees had swollen the population of Hong Kong, but brought also large amounts of capital into the colony, which was used to set up thousands of workshops and factories. With the political disruption in mainland China in the late 1940s and early 1950s another massive flow of immigration started boosting Hong Kong's population again, causing serious economic and social problems, like very high unemployment, housing and infrastructure shortages. Though refugees were a burden, they also created a large pool of labor and entrepreneurial talent, often equipped with capital and business experience. The Shanghai textile industry, for instance, shifted much of its capacity to Hong Kong after the communist victory, creating a booming textile industry in Hong Kong that rapidly expanded exports to markets in Southeast Asia.

In the 1970s Hong Kong had developed a strong, mostly locally owned manufacturing sector, comprising many small firms with labor-intensive production. These firms increasingly produced for exports through subcontracting or contractual arrangements for foreign clients or local trading partners. The share of manufacturing in GDP thus rose quickly, turning Hong Kong into an industrializing country. Singapore, with little indigenous supply of capital and knowledge in manufacturing, had departed in a different direction, opening the country for foreign investors. Strictly controlled work conditions and low costs led to strong influx of foreign capital, resulting in the construction of numerous large scale production plants. In Singapore the share of manufacturing increased later than in Hong Kong but then very markedly. Both city states were continuously stronger involved in the emerging new international division of labor. By the late 1970s, Singapore's share of GDP derived from manufacturing reached 29% and was finally higher than Hong Kong's share amounting to 25%.

The next round of industrialization began to be felt in the mid 1980s. Standardized production using cheap labor increasingly shifted to the now 'optimal locations' in other

Southeast Asian territories, to those as near as the new Special Economic Zone of Shenzhen in the case of Hong Kong, or into Johor (Malaysia) in the case of Singapore, or to remote locations in the Philippines or Thailand. Again, Hong Kong started to restructure earlier. In the mid 1980s the manufacturing share in GDP started to decrease fast and strikingly, from about 24% to 14%. Singapore's share of manufacturing remained with about 30% rather high until the late 1980s and then decreased only slowly to 28%. Hong Kong hence earlier started to develop towards a post-industrial economy.

Before a closer look is taken at the specifics of the political systems and recent socio-economic development of Hong Kong and Singapore, some basic data will be given for the two city states and contrasted with the respective figures for Australia (Tab. 2-4). Most of these data need no detailed comment, except perhaps for emphasizing the fact that the city states of Hong Kong and Singapore with only a fraction of Australia's population export and import a several times more than the whole of Australia. And, as concerns tourism, despite the fact that Australia earns higher receipts from tourists than Singapore and still a little more than Hong Kong, these differences are, given the large population differences, rather an indication of Australia's comparative weakness in that sector.

Table 2-4: Geographic, population and socio-economic data for 1999

	Hong Kong	Singapore	Australia
Population (Mio.)	6.72	3.89	18.94
Total land area ('000 hect.)	110	66	768230
Density (pop./sq. km)	6290	5900	2.50
Employment (Mio.)	3.13	1.89	8.74
Per capita GDP (US $)	23655	21837	20254
Exports (Bill. US $)	174	115	56*
Imports (Bill. US $)	180	111	57*
Tourist arrivals (Mio.)	11.32	6.95	4.46*
Tourist receipts (Bill. US $)	7.21	5.89	7.34*

Source: Statistics Division, United Nations Economic and Social Commission for Asia. * Data for 1998

Singapore: a developmental city state in global competition

A characterization of Singapore's socio-economic and political system is not easy. On the one side, it is a market economy highly integrated into worldwide exchange of goods and services and open to foreign investors. On the other side, the political and social conditions differ markedly from the Western model of 'freedom and democracy', as concerns the relations between state and individual, workers and employers or basic political rights (Perry et al. 1997). The government, for instance, controls the choice of residential location and most of the population has little chance of acquiring freehold property, so there is little alternative to public housing. The citizens are instructed by the state on private issues such as the timing of

household formation and child birth, the officially desired number of children and the importance of the five 'shared values' for social life. The government also exerts a strong influence on workers and their institutions. Through the National Trade Union Congress, which is headed by a government minister and administrated by government-linked officials, all legal activities of workers to forward their interest are controlled. In the political arena public debates are channeled by government-controlled agencies or officially-registered parties, which however lack the resources and opportunities of the ruling PAP. The freedom of the local press is constrained through government control and foreign press publications cannot circulate without supervision and restrictions. Adding to these rather direct mechanisms of steering and control, the state pressures individuals through numerous campaigns aimed at influencing their behavior in issues like courtesy, or personal and public hygiene.

While the socio-economic and political system is thus rather authoritarian in the eyes of Western world, Singapore's system has over the past five decades proved extremely successful in economic terms. And this economic success is the raison d'être of the Singapore state, the primary source of national identity for its citizens, the one important guideline for present politics. A state built on such a purely economic base has been termed *developmental state* by Castells (1992:56) being legitimated by 'its ability to promote and sustain development, understanding by development the combination of steady high rates of economic growth and structural changes in its productive system'. For developmental states in Asia, striving for independence from their former colonial powers, this usually included the principal acceptance of the inherited social and value system to not endanger the approval of the population. Such states were then engaged in two basic tasks, one being the economic development of the country under avoidance of conflicts with existing value systems and major disruptions in societal cohesion, the other, in interdependence with the first, building new and own cultural and political identities gradually to assure the citizens' approval to the states structure and actions.

In Singapore's geographical situation and under the specific political circumstances three main challenges had to be resolved (Perry et al. 1997):
- Regional isolation: Singapore's leading party since independence, the PAP, had for long followed a strategy of integration with Malaysia, since it seemed an unfeasible option to prosper on its own as an independent state. But since its own population was mainly of Chinese origin and had developed close trading ties with the influential Chinese minorities in the urban centers of neighboring countries (Indonesia, Thailand, Malaysia), these governments perceived Singapore as risk to their

own stability. As a result of the period of the so-called confrontation between these countries from 1963-1966, Singapore was ejected from the Malaysian Federation and formed an independent state. Prospects for regional economic cooperation were severely hampered after this political turmoil. And, with the closure of Britain's military bases in the years thereafter, a major stimulus for Singapore's traditional economic base eroded.

- National identity: With its independence, building up a national identity became a necessary ingredient to secure Singapore's future. Developing loyalties and social ties between the two minority ethnic groups of Malaysians and Indians (mainly Tamils) and the majority group, the Chinese, and the new state became an important task. The social commitment of the inhabitants of Chinese origin, comprising three quarters of the population, to traditional clan and family associations had to be redirected towards the new state authorities.

- Political division: After gaining power, the PAP, coming from a socialist origin that had served to unite the population and mobilize support for independence, moved towards a conservative agenda under the leader Lee Kuan Yew. A separate socialist party became one of the major opponents of the PAP and fears of communist insurrections led to systematic anticommunist repression, which was in some cases also extended to other rivals of the PAP.

Under these challenges a strong state became the PAP's goal. Political control was centralized in the state government, eliminating municipal administration and centralized within the PAP in a group of 200 trusted party members. The administration of the public service and trade unions was merged with the PAP's institutions. Legal political opposition against the ruling PAP became almost impossible. The regulations, for example, allowing the imprisonment of individuals for an indefinite time if they are charged with 'subversive activity' are still in effect, though leftist insurrections are no longer a real danger.

From the early years of independence onward, the Singapore government prioritized economic development above all other goals and in fact, the first industrialization programs proved very successful. In the first development plan set up in 1961, it was acknowledged that enterpôt trade and banking, long the only sources of Singapore's wealth, were no longer sufficient to uphold prosperity under contemporary conditions. Many measures to attract foreign investment were implemented, such as control of wages and workforce behavior, free infrastructure provision and minimization of public planning restrictions. A rapid influx of capital from industrialized countries followed. This strategy resulted in rapid expansion of the manu-

facturing workforce and sustained economic growth, leading to wide acceptance of the PAP's political program and guaranteed the populations support for the government.

Through successive rounds of industrial restructuring, high growth rates were sustained raising per capita incomes to the level of Western countries. By the late 1980s rising concerns in the population that economic growth was only achievable at the expense of degrading the natural environment and cultural heritage became apparent. With the ambitious program *Living the next lap,* introduced in 1991, the government sought to answer these demands. Combining elements of modern regional and industrial structures with improvements in housing supply, living conditions and leisure facilities offering a higher 'quality of life', this program envisages standards comparable to advanced countries, be it in cultural, ecological or economic terms.

In the economic arena Singapore vigorously follows a path of modernizing to speed up the implementation and application of ICT (Jessop/Sum 2000). Already in the mid 1980s a first national plan on information technologies was introduced. It was followed by the IT2000 vision, aimed at examining how business performance and quality of life could be enhanced by ICT. Under the Singapore ONE (One Network for Everybody) strategy, proclaimed in 1996, the ambitious goal of putting a truly nationwide broadband network into operation was set to turn Singapore into the 'intelligent island' of the world. To exploit the economic opportunities of the new technologies, a number of major projects are in progress that are concentrated in two 'technology corridors', both equipped with up-to-date infrastructure in ICT, mass and private transportation and with high quality housing and environments (Corey 2000). The first, the Southwestern Technology Corridor, embracing six business parks, the Singapore Science Park and Singapore's two universities, is planned to offer world-class research infrastructure and facilitate cooperation between business and science communities. And the second, the Northeastern Technology Corridor, stretching from Changi International Airport to a regional center including seven business parks, is focussed on aviation and high technology aerospace industries.

Based on Singapore's economic progress and supporting it, three main elements of social cohesion were introduced that have been refined and adapted continuously. (1) Public housing, available to less than 10% in the sixties, is now available to over 80% of the population, with home ownership (as a 99 years lease) in the public sector for most households. (2) A network of 'parapolitical institutions' connected to the government was erected, providing community-based facilities but also channeling political debates and influencing it. (3) Government steered public campaigns and programs continue to be the central instrument to guide

the behavior of citizens since the late fifties. Meanwhile dozens of such campaigns have been conducted, aimed at directing people in all issues considered important for national development, ranging from efforts to improve productivity to efficient energy use and private matters like looking after elderly parents, living healthy or speaking Mandarin.

In the decades following independence, politically guided nation building and economic growth secured social peace. With increasing levels of wealth, however, an affluent middle class has developed, living outside the managed environments of public housing and care, and young Singaporeans now take the material wealth and national sovereignty for granted that once united the society and its leaders. In the PAP, which has been loosing shares in national elections slowly but almost uninterruptedly, control has meanwhile been handed over to a younger and 'new guard' of leaders. Cautious adjustments of the instruments for political and social control are under way but it remains to be seen whether they will suffice to keep the system stable in the long run.

Hong Kong: from export platform to Asia's world city?

The 1990s in Hong Kong were a period of intense economic and political changes. The most significant event was the return to mainland China in 1997 after the 99 years lease had ended. Presently Hong Kong has the status of a Special Administrative Region (SAR) in China. In the earlier Sino-British Declaration of 1984 accepted by both governments, it is stated that Hong Kong may keep its political and economic system for another 50 years ('One Country, two systems' principle). This grants Hong Kong a high degree of autonomy, the legal system remains unchanged, and there are free elections for the Legislative council. The administrative system is headed by Tung Chee Hwa, the present Chief Executive who was elected by a 400 member committee appointed by the Beijing government. Monetary and fiscal policies remain under Hong Kong's control and it can act as an independent member in international trade organizations and conclude bilateral agreements with foreign states on economic and immigration affairs. In other foreign affairs and defense Hong Kong depends on China.

The Hong Kong administration could under these conditions follow its earlier 'positive non-intervention strategy' to ensure global competitive advantage (Jessop/Sum 2000). This strategy includes the improvement of the physical, institutional and electronic infrastructure, low levels of taxes and regulations for finance and trade and the maintenance of the free trade and free port status.

Structural changes in the economy continued throughout the 1990s with a strong decrease in manufacturing employment and increases in mainly the group of finance, insurance,

real estate, and business services and in the group including wholesale, retail, import, export, restaurants and hotels. Hong Kong's so called 'hollowing out' from manufacturing can be seen in the fact that, in the 1990s, almost 25,000 Hong Kong firms, mainly from the textile and clothing and consumer electronics industry, shifted production to low cost sites in the Guangdong province in Southern China, employing 3 million workers there. This is about three times more than the remaining manufacturing workforce of Hong Kong. The related higher level production activities like research and development, design, and also top management and worldwide trading continue to be concentrated in Hong Kong. Similarly, standardized production from Taiwan was relocated into Southern China and related financial and trade activities organized through Hong Kong, since direct exchange between Taiwan and China is still restricted for political reasons. Hong Kong's new competitive advantage in the global competition can then be seen in the flexibility of its industrial and commercial networks to process orders by subcontracting in a short time. With the easy accessibility and proximity of labor reserves in China, and its management and trading capacities, Hong Kong emerges as a prime gateway city of global significance. The socio-cultural proximity between Hong Kong, China and Taiwan greatly eases these complex exchanges in 'Greater China', especially since they can benefit from many kinship ties and linguistic affinities, though Cantonese spoken in Hong Kong differs from the Chinese Mandarin.

Complementary to this industrial restructuring, Hong Kong's role as a financial center has been strengthened since the early 1980s for a number of reasons: the low level of regulation attracted firms and capital flows from the liberalizing and deregulating countries, China opened its borders for inward and outward investment being managed through Hong Kong and the Asia Pacific region continued to prosper and fuelled Hong Kong's financial sector.

Even the strong expansion of producer services and financial activities, however, is seen by state and industry officials as not sufficient to provide an economic base for Hong Kong in the 21st century. Rising residential and office costs undermining the profitability of many services and a lack of investment in high technology industries to regenerate the shrinking manufacturing base are perceived as the major obstacles. Under the impact of the Asian financial crisis during 1997 and 1998, economic conditions in Hong Kong worsened, the stock index and property prices were approximately cut in half, growth rates shrank and turned negative, unemployment rose to 6% in 1999.

With major new initiatives public authorities and private investors seek to push Hong Kong back to a growth path, oriented towards constructing a world-class base in high technology production and associated services .

- The megaproject most close to realization is the 'Cyberport' planned to be completed by 2007, which will offer about 12,000 professional jobs financed by private capital with public support. It is intended to provide the most advanced infrastructure in ICT for the large global enterprises in the electronics and information industries and for smaller local and regional firms in these sectors as well as housing, retail and hotels.

- Some projects are underway, where for a limited time free rent is traded against equity shares of companies of 'infopreneurs'. One such project launched by large property developers is the 'Cyberincubator', granting companies in the information sector rent-free space for three years in exchange for 10% stakes of these companies.

- Still under discussion is the implementation of a megaproject termed 'Silicon Harbour' planned for 200 to 300 companies that would constitute a production complex for the next generation microchips. Doubts have been raised against this project, since it might result in a misallocation of resources that should rather be invested into service-oriented information infrastructure and jobs like e-commerce.

Most recently the initiatives to become a globally important center for high technology industries and information services has been combined with an explicit strategy to become *the* world city in Asia, rivaling or surpassing even Tokyo. Drafted by the Commission on Strategic Development (2000) and officially approved, the goal is to support the shift towards a knowledge-based economy, with a growing business services and financial sector, a deepening of subcontracting, management and trade ties into China. Hong Kong's position would thus undeniably be at the top among Asian cities and in global hierarchies next only to the globally leading cities, London and New York.

3. Australia globalizing: population, economy, and politics

Building on the general trends in economic change and the development of the wider Pacific Asian region outlined above, the following section will portray the demographic, economic and political structures and trends crucial for urban and regional restructuring in Australia. Most emphasis will be placed on the economic condition of the country, comparing its state of affairs with the situation of other advanced industrial countries.

Population: size, growth, and spatial distribution

Throughout the twentieth century Australia has been a growing country (ABS 2001a). Between 1901 and 1999 the population grew from 3.78 to 18.97 million. Even when growth rates in most western countries had long diminished, Australia still gained inhabitants rapidly. From 1989 to 1999 the population thus enlarged by approximately 2 million people. The most recent officially published growth rate (for the years from 1998 to 1999) was 1.3%, which coincides exactly with the rate of world population growth. This growth rate is significantly higher than in other industrialized countries like the US (0.9), UK (0.3), Germany (0.3) or Japan (0.2). Further growth is expected in Australia. Depending on the size of parameters assumed (rate of natural increase, net overseas migration) the population will grow until 2051 to a size between 24.1 and 28.2 million (ABS 2000).

The growth of the population over the last century can be divided into two components: natural increase and (net) overseas migration. Of these natural increase contributed overall two thirds to the population growth, immigration one third (ABS 2001a). The yearly growth rates of population in the last decades due to natural increase were usually a few percentage points above the growth rates due to immigration. Since the latter rarely dropped below 5% (ibid.), Australia persistently had high immigration for a relatively small country. Between 1947 and 1995 5.3 million immigrants settled in Australia, turning it[3] in the early nineties into the country with the most immigrants per capita in the world (Burnley 1998) and hence a true cosmopolitan country.

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[3] If the special case of Israel is omitted.

Figure 3-1: Spatial distribution of population

1 Dot = 2,000 people

(a) Estimated resident population.
Source: Regional Population Growth, Australia 1998–99 (3218.0).
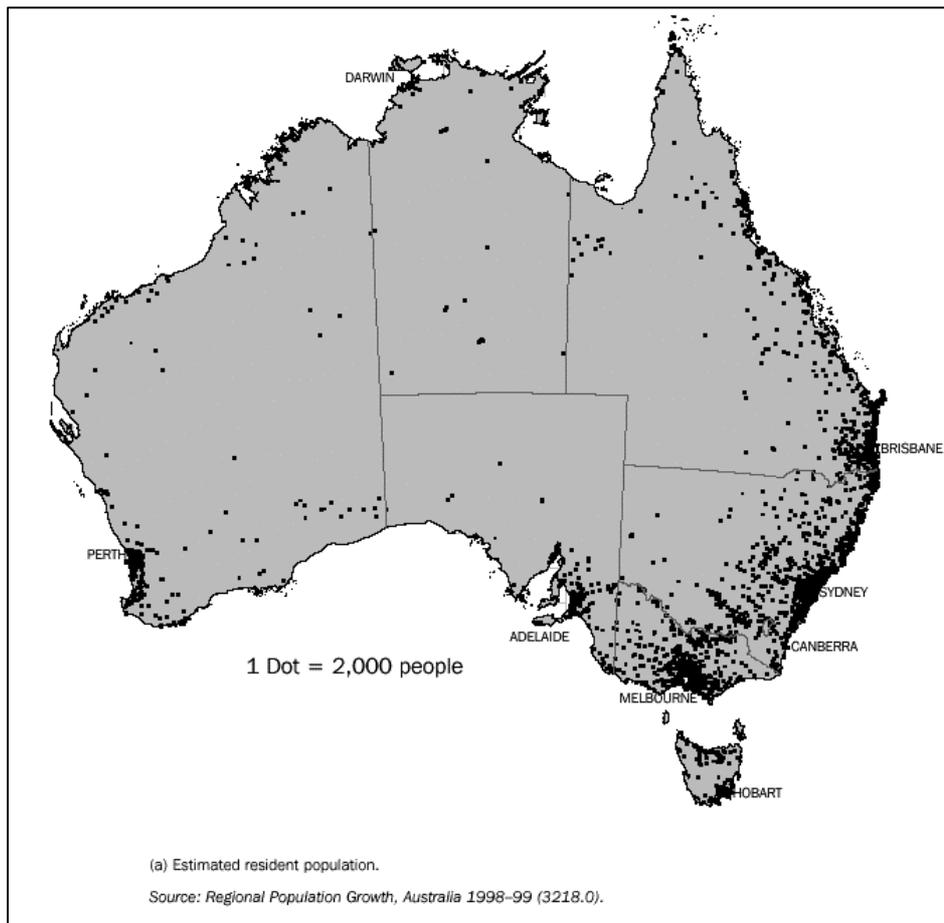
Source: ABS (2001b)

Spatially Australia's population is extremely unevenly distributed, being concentrated in two rather separated coastal regions (Fig. 3-1). The far larger one in the South-East and East, the smaller one in the South-West. Stated differently, only 0.3% of the national population lives in the least densely populated 50% of the continent, while 80% of the population lives in the most densely populated 1% of the continent. The highest concentrations of population are found in the capital cities (Sydney, Melbourne, Brisbane, Adelaide, and Perth), with Sydney and Melbourne accounting for roughly 40% of the total Australian population (ABS 2001b). The other densely populated regions are the regions stretching along the coasts of the East and South-East.

The large capital cities almost solely constitute the urban system of Australia, resulting in a rather truncated urban system, with very few cities larger than 100,000 inhabitants outside the metropolitan or densely populated coastal regions (Fig. 3-2). This structure stands in stark contrast to urban hierarchies of many other industrialized, esp. European countries with, in general, a large spectrum of middle sized big and viable cities distributed across the na-

tional territory. Hofmeister (1988:74) accordingly states that there is 'no true hierarchy of central places' in Australia.

Figure 3-2: Cities with more than 100,000 inhabitants
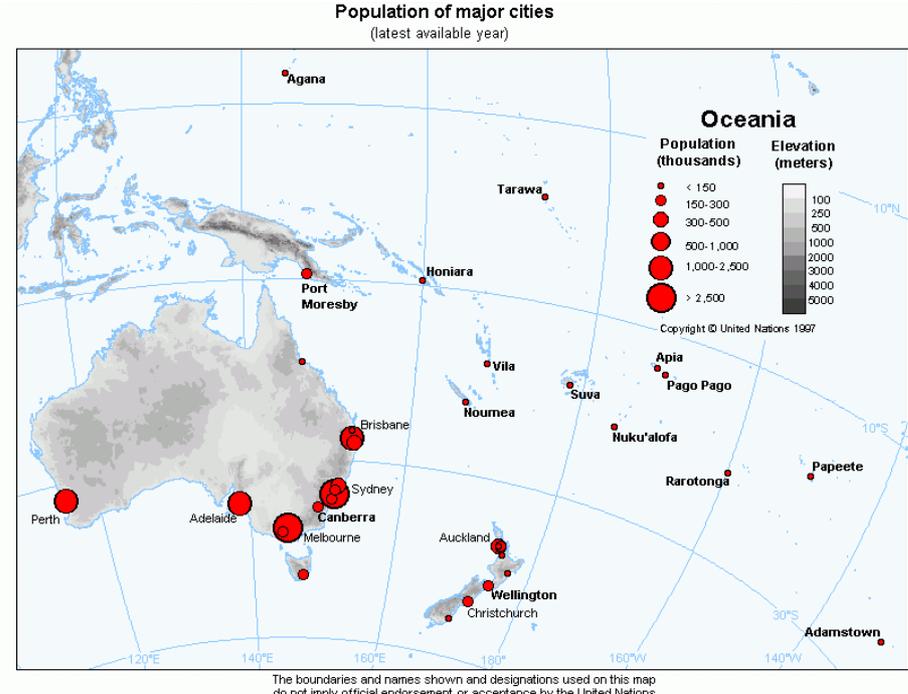
Source: www.un.org/Depts/unsd/demog/sea.dyc.htm

Next, recent changes in population distribution will be described. Of the overall population growth registered in Australia between 1994 and 1999, about 70% occurred in the capital cities (ABS 2001b). In *relative* terms Brisbane and Perth were the fastest growing capital cities, reaching growth rates well above the national average. The highest growth rates in the larger population centers, however, came about in the coastal regions. The population of Sunshine Coast and Gold Coast grew about three time faster than the national average (Tab. 3-1).

In absolute terms the largest cities attracted once again the largest amount of people. Sydney's population increased by 272,000 and Melbourne's by 204,000 inhabitants. While most of that growth 'has tended to occur on the urban fringe of the capitals, spectacular growth rates in the inner city areas have been a dramatic feature within Australia's two largest capitals. From 1994 to 1999 the inner city Local Government area (LGA) of Sydney grew by an average of 19% per year (population 22,800 in 1999) while the LGA of Melbourne (population 47,500 in 1999) had an annual average growth rate of 5.9%' (ABS 2001b).

Table 3-1: Population in major population centers (> 100,000 inhabitants)

Major population center *Capital City Statistical Division*	Population 1994	Share in %	Population 1999	Share in %	Annual Growth Rate
Sydney	3769600	21.1	4041400	21.3	1.4
Melbourne	3213000	18.0	3417200	18.0	1.3
Brisbane	1455200	8.2	1601400	8.4	2.0
Adelaide	1071700	6.0	1092900	5.8	0.4
Perth	1246300	7.0	1364200	7.2	1.9
Hobart	194500	1.1	194200	1.0	0.0
Darwin	79000	0.4	88100	0.5	2.3
Canberra	301100	1.7	309900	1.6	0.6
other					
Newcastle	454200	2.5	479300	2.5	1.1
Gold-Coast	321900	1.8	391200	2.1	4.3
Canberra-Queanbeyan	337400	1.9	348600	1.8	0.7
Wollongong	250500	1.4	262600	1.4	1.0
Sunshine Coast	142200	0.8	172900	0.9	4.3
Geelong	151600	0.8	156100	0.8	0.6
Townsville	119200	0.7	127200	0.7	1.3
Cairns	97800	0.5	114000	0.6	3.3
total	*13205200*	*74.0*	*14163199*	*74.7*	*1.5*
Australia	**17854700**	**100.0**	**18966800**	**100.0**	**1.2**

Source: ABS (2001b), own calculations.

Relative population decline came about mainly in Australia's rural areas, which lost shares of population rather steadily over the last decades and reached a share of 14% of the national population in 1976. In the eighties that process appeared to have halted. Recent data, however, again show declining shares of rural population. In contrast to the fast growing inner city suburbs of Sydney and Melbourne mentioned above, some suburbs of the capital cities show very low or negative growth rates. One example for this being Canterbury LGA of Sydney (ABS 2001c).

Economy: industrial structure, technology, and external relations

Australia's economic structure is increasingly determined by service industries (Tab. 3-2). Measured by share of employment, almost ¾ of the workforce is now (1998/99) employed in industries of the service sector, only little more than ¼ in goods producing industries. The largest single subsector of all industries is *retail trade*, followed (still) by *manufacturing*, but now almost rivaled by *property and business services*, that show an extraordinary employment growth, increasing more than four times the average value of total employment. Other very fast growing sectors are *cultural and recreational services* and *accommodation and restaurants*. Within goods producing industries *construction* is the only subsector with an above average increase. And Australia's economy is still comparatively strongly influenced by re-

source based industries like *mining* and *agriculture*, contributing important shares to employment and value added.

Table 3-2: Industrial structure and change (1993/94-1998/99)

	Employed persons			Gross value added		
	. 1998/99 (1000)	Growth 1993-99 (%)	Share 1998/99 (%)	1998/89 (bill.$)	Growth 1993-99 (%)	Share 1998/99 (%)
Goods producing industries						
- Agriculture	421.8	3.2	5.0	19.0	16.6	3.1
- Mining	79.6	-11.0	0.9	23.9	26.3	3.9
- Manufacturing	1082.5	-0.9	12.2	73.8	9.8	12.5
- Electricity, gas, water	64.7	-29.8	0.8	13.5	4.2	2.2
- Construction	634.1	13.6	7.4	34.3	32.8	6.0
- Subtotal	*2282.7*	*1.9*	*26.3*	*164.5*	*16.5*	*27.7*
Service industries						
- Wholesale trade	506.7	-0.7	5.9	31.2	39.0	5.4
- Retail trade	1298.5	16.5	15.2	31.1	25.1	5.6
- Accommodation, restaurants	411.3	18.4	4.8	13.3	27.3	2.2
- Transport, storage	408.7	12.7	4.8	31.4	24.8	5.6
- Communication	151.4	13.9	1.8	18.9	61.1	2.9
- Finance, insurance	319.9	0.9	3.5	37.7	40.4	6.6
- Property, business services	945.0	47.2	10.9	59.5	38.3	10.3
- Government admin., defense	345.3	-6.2	3.9	22.9	7.1	4.1
- Education	603.5	9.3	7.2	26.5	7.8	4.5
- Health, community services	817.4	15.3	9.3	33.0	16.1	5.8
- Cultural, recreational	209.3	25.2	2.5	10.5	17.6	1.8
- Personal and other	338.7	16.3	3.8	12.9	24.1	2.3
- Subtotal	*6355.7*	*15.2*	*73.6*	*329.3*	*27.4*	*57.0*
- Other[1]	-	-	-	90.0	-	15.3
Total	**8638.4**	**11.4**	**100.0**	**493.8**	**23.5**	**100.0**

Source: ABS (2001) Industry Overview (table 13.1), Service Industries Overview (tables 21.2, 21.3),
www.abs.gov.au/ausstats.

1 For Gross Value Added figures the contribution of ownership of dwellings and taxes less subsidies on products are given, including a factor of statistical discrepancy (cf. ABS tab. 13.1)

Comparing the shares of value added with those of employment gives some indication of productivity relations between the subsectors. While for example both shares for *manufacturing* are roughly equal, the share of value added is significantly lower than the share of employment for *construction*, *retail trade*, and *health and community services,* indicating high labor intensity, lower wages and equally lower knowledge-intensity in those sectors. The opposite is true for *finance and insurance* and *communication*, indicating the above average value creating potential of these sectors. They also display by far the strongest increase of value added over the period 1993/99 of all industries. The third largest increase, slightly above the figure for *property and business services*, results for *wholesale trade*, pointing at its relatively high, often underestimated, potential for the creation of value added (cf. Stein 2002).

Some remarks about *tourism* seem necessary here since it is often seen as an important source of income, and not presented separately in the above data. Australia has significantly raised its attraction to international tourists since the late eighties, growth rates in tourism flows were almost twice the international average (ABS 2001d). In 1997/98 employment shares of tourism in Australia figured at 6%, almost equal to wholesale trade, with its share of GDP at 4.5%. International tourism, however, contributes only about 20% to this output, domestic tourism is still the major source of income.

As demonstrated in Tab. 3-2 *manufacturing* is, measured by its share of GDP, as yet the second largest sector in Australia's economy. Its share of total Australian GDP, however, is shrinking rapidly, probably too rapidly. Between 1980 and 1997 manufacturing's contribution to GDP fell from 17% to 13% in Australia. Competing countries take different routes. In the US for example the contribution of manufacturing to GDP remained rather stable at 19% over that period, and the share of manufacturing even expanded from 25% to 27% in Japan (ABS 2001e).

A strong, globally oriented manufacturing base with close relationships to advanced services and research and development activities remains basic for highly industrialized countries and knowledge-based economies. From a comparative view, Australia's performance is mixed in this respect. An analysis conducted by the Department of Industry, Science and Research (DISR 1999:5) evaluating Australia's standing in relation to OECD countries for 1996 on the basis of three composite indicators summarizes that Australia achieves 'medium to high ranking across most indicators'.

- In *information and communication technologies* Australia has a lead, e.g. investing a higher percentage of both fixed capital and GDP into physical infrastructure.
- In *human capital* indicators Australia performs less impressively. For instance, public expenditure on formal education (measured as a percentage of GDP) is lower than in most other OECD countries and duration of on-the-job-training clearly shorter.
- In some *production and technology* indicators Australia achieves good rankings, e.g. for patenting activity. But according to the overall indicator 'percentage of R&D expenditure in GDP' Australia ranges considerably below OECD average.

Though this latter rate has been increasing rapidly since 1986, moving Australia closer to the OECD average, recent years might have reversed this trend, since policies have become less supportive (Sheehan 1999).

The mixed performance of Australia in knowledge-based production correlates with results of comparative, international studies evaluating the competitiveness of industrial clusters in OECD countries. Roelandt/den Hertoeg (1998:13) summarize that there is a 'scarcity of networks of production and innovation' in Australia, resulting in an extremely patchy industrial structure. Factors contributing to these deficiencies are seen in the low-tech nature of much economic activity in Australia and the concentration of business activities in relatively few multinationals (RICC 1999).

How then does Australia compete on international markets, what are strengths and weaknesses in international trade and capital investment?

In contrast to other advanced countries, Australia's *exports of goods* are, up until now, dominated by minerals and fuels, e.g. coal, iron ore, aluminum, crude and refined petroleum, and agricultural products, wheat, meat, and wool (DFAT 2001). The share of products with higher technology intensity is nonetheless improving. Consequently, so called 'elaborately transformed manufactures' might in a couple of years be the largest group of export products (Neilson 2001). Australia's *imports*, on the other hand, are clearly dominated by products with high technology intensity, such as computers, telecommunication equipment, aircraft, motor vehicles and pharmaceuticals. *Geographically* exports from Australia are heavily concentrated in Asian and Pacific countries, which receive almost 50% of total exports, and in Japan, the single largest trading partner, receiving 17% alone (DFAT 2001). Next largest trading partners are the US (8%), New Zealand (7%), Korea (6%) and Singapore (5%).

Analyses of *export and import of services* also point out the problematic competitive . position of the Australian economy. Recent research by Daniels and O'Connor (2000) indicates that Australian foreign trade in services consists largely of transport and travel (tourism) services, which is not considered as advanced in relation to sophisticated and complex producer services. Although the country has a well developed base in those services, it 'nevertheless occupies a very minor place in producer services trade' and records a trade deficit in those advanced services. Of this small share of producer services trade, the largest fraction is directed to the US, while the emerging markets of the Asian Pacific region play a minor role. Into neighboring ASEAN states Australia mainly exports travel and transportation services.

The imbalances in Australian foreign trade, as concerns the technology intensity of traded goods and advanced producer services is reflected in the imbalance of foreign direct investment (FDI). When assessed according to *cumulative net flows* of FDI of all 28 OECD countries, Australia ranges in a group of East European and Mediterranean countries (cf. Miyake/Thomson 2001). *Inflows* of FDI into Australia from 1990 to1998 reached an amazing

level of 55.6 bill. US $, placing Australia right behind (four times more populous) Germany with 60.2 and before Italy with 31.3 bill. US$. *Outflows* of FDI from Australia sum up to 27.6 bill. US$ in that same period, leaving the country behind Finland, which has only a fourth of Australia's population and invested 37.7 bill. and just before Korea investing 24.9 bill. US$ abroad. As a result investors from foreign countries invested 28 bill. US$ more in Australia than Australians invested abroad.

Such imbalances are rather typical for less advanced countries with middle sized populations like Poland, Greece or Spain. For advanced industrialized countries inflows and outflows tend to equalize (cf. Miyake/Thomson 2001). The imbalance is in part caused by Australia's abundance in natural resources that cannot be exploited efficiently with the countries limited capital (and labor) supplies alone. The technological gap between Australia and many other industrialized countries contributes to this, as well as favorable locational conditions in Australia. The high level of net foreign investment, while probably creating (at best average qualified) jobs, leads to a substantial outflow of net income and interest payments. This contributed substantially to the current chronic account deficit of Australia over the past decade (ESCAP 2001).

Politics: deregulation and inequality in Australia

The deregulation of the Australian financial system since the mid-eighties, which included the liberalization of foreign capital movements, has spurred this high level of foreign investment. It was complemented by the deregulation of the labor market. In both domains Australia has moved from one of the most highly regulated to one of the least regulated countries of the Western world. Equally, the protection of the domestic industries by tariffs and non tariff barriers has been reduced drastically. Previously protected by one of the highest tariff levels of the industrialized world, Australian manufacturing is now only shielded as much as OCED countries on average (Emmery 1999). Within about 30 years, the average effective rate of assistance to manufacturing has been constantly lowered from 35% to 5% (ibid.). The restructuring of the economy that came about with all these policy measures put the Australian welfare systems under severe strain, and, as in many other states, income inequality increased. It will be pointed out later how Australia compares in that respect.

The deregulation of the financial system brought a dramatic change in the institutional organization and economic importance of the financial sector of Australia (Bora/Lewis 1997). Before the deregulation of the financial system, starting at the end of 1983, the Australian money and capital market was highly protected and controlled. Interest rates were largely

determined by domestic conditions, controls of foreign exchange were in practice and portfolio investments by Australians restricted. Most of these controls have now been removed. In the present financial system, therefore, a large number of new markets (for foreign exchange, corporate bonds, secondary mortgages and other derivatives) and new institutions (like foreign exchange firms, recognized bond dealers, financial trusts and managed funds) have emerged. The number of managed funds alone, providing services to consumers, now ranges at over 2000. An indicator for the heightened activities in financial markets is that daily turnover in trade with government bonds is now twenty times larger than 1985.

In parallel with financial deregulation, the regulation of labor markets was modified substantially (Lambert 2000). From its foundation in 1901 the Australian federal state had sought one of the main facets of its identity in a strong belief in egalitarism, upheld over time mainly by centralized wage fixing, coupled with strict protection of domestic manufacturing. Strong trade unions, representing all workers of an industry, secured a perpetual increase in wages and continuous improvements of working conditions. The state set the regulatory frame, establishing industrial courts empowered to make binding rules on wages and employment conditions. The employers finally came to accept this system, since manufacturing was strictly protected from global competition by high tariffs. At the end of the seventies signs for the crisis in the fordist system became obvious in Australia: export earnings dropped since terms of trade for resource based Australian commodities worsened, competitiveness of Australian manufacturing declined, external indebtedness increased. The liberalization of the Australian economy that then was set into motion was largely uncontested among the major political forces.

After the labor government came to power an a*ccord* was established with trade unions to set the conditions of change, aiming at the transformation of work organization, the implementation of new technologies and necessary training schemes for workers. The accord lasted from 1984 to 1993. While in that period Australian manufacturing, measured by R&D intensity, made significant steps towards a more knowledge-intensive and innovative production (Sheehan 1999), social conditions worsened for large segments of the workforce (Lambert 2000). If social and real wages are taken together, average living standards declined by 5.4%. Unskilled workers suffered the strongest wage reductions, having to accept cuts of 15.6%. Temporary, part-time and casual employment became widespread. Part-time labor thus increased three times faster than full-time employment. The percentage of temporary or short time employed in Australia rose from 16% to 24%, an expansion larger than in any other OECD countries, except for Spain. By 1994 about 25% of the workforce had been casualized.

The 'normal work day' of 8 hours and the 40 hours week, once important achievements of the labor movement, withered away. By the late nineties only one third of the workforce retained the former standard working hours. That is, the majority now has to accept longer work times. And the proportion of employees normally working extended hours (more than 48 hours a week) was also almost one third in 1996, which is twice as much as a decade ago.

With the 1996 *Workplace Relations Act* the liberalization of the labor market received a new push towards deregulation and weakening of organized labor. The new regulatory system places more emphasis on decentralized, workplace-based bargaining for wages, further marginalizing collectivized regulation.

The liberalization of foreign trade is intended to be continued as well (Emery 1999). The main industries still protected are the clothing, textile, footwear, and passenger motor vehicles industries. Under APEC agreements, Australia has committed itself to cut tariffs further and implement free trade by 2010.

Different countries acted differently in the face of restructuring and globalization. What were the social outcomes in Australia from a comparative view? Following Esping-Anderson's categorization of Western countries into 'Three World's of Welfare Capitalism' Scharpf (1999) distinguished the Anglo-Saxon, the continental European, and the Scandinavian model and compared the institutional differences, reactions to globalization and relative performance for twelve OECD countries[4]. Australia stands with the UK for the first, Germany for the second, and Sweden for the third 'world' of welfare capitalism. Some results of this study are presented subsequently (Tab. 3-3).

A main trait of the Anglo-Saxon model, and obvious for Australia and the UK, are their above average levels of total employment, particularly of business employment. Australia in addition has by far the highest percentage of employment in the sector trade/ accommodation/ restaurants (of all 12 countries included). High employment levels in these service sectors, where the first represents the higher and the latter the lower skill segment of the workforce, is favored by low levels of overall taxation and low social security contributions. Many of those jobs are not threatened by global competition since they are in-person-services. In contrast, the percentage of industrial (manufacturing) employment is the lowest of all countries examined, pointing again at Australia's weak manufacturing basis. Government employment is below the OECD average in Australia and less than half of the share in Sweden, where many social services are delivered directly by the state.

Table 3-3: Employment structure, revenue, and performance of welfare states

|	Australia	UK	Germany	Sweden	OECD (18)
Employment (% of pop. aged 15-64)					
Total	*68.7*	*69.3*	*61.7*	*72.2*	*66.5*
Government	10.3	9.6	9.5	22.4	12.6
Business	58.1	59.1	52.3	49.6	52.7
Industrial	9.8	13.2	16.4	13.5	13.0
Trade/accommodation/restaurants	17.2	13.7	11.0	10.6	13.0
Taxes/Social Security (% of GDP)					
Total taxation	*30.5*	*35.5*	*39.2*	*49.7*	*39.8*
Social security	2.1	6.2	15.5	15.5	10.9
Taxes on goods and services	8.9	12.7	10.9	12.0	11.2
Personal & corporate income tax	16.8	13.1	10.8	20.5	15.7
Indicators of Performance					
Social expenditure (% of GDP)	15.7	22.8	29.6	48.8	24.7
Services for families and aged (% of GDP)	0.6	1.2	1.4	5.1	1.6
Female labor participation	64.4	68.4	61.0	76.3	61.2
Earnings dispersion for genders	1.6	1.8	1.4	1.3	1.7
Replacement rate of unemployment benefits	59.0	68.0	75.0	81.0	n.a.

Source: compiled from Scharpf (1999).

Among performance indicators total social expenditure in Australia is at the lowest level recorded for any of the twelve countries, so is the percentage of services for families and the aged. Australia achieves better values, however, for the indicators comparing gender equality. Female labor participation is above average and earnings dispersion is lower than the OECD average, but still higher than in Germany. Sweden and Denmark (not included in the above table) representing the Scandinavian welfare model of capitalism, clearly show by far the best values for all performance indicators.

Another indicator commonly used to compare countries according to the level of social welfare and equality is *income distribution*. The many conceptional and data problems that exist for such international comparisons have been thought to overcome by the Luxembourg income study established in 1983, now comprising 21 industrialized countries, using data for disposable (after-tax) household income in 1995 (Saunders 2001). Among those countries Sweden ranges, measured by the Gini coefficient[5], on position 1, that is best, Germany on 12, the UK on 20, and the US on 21. Australia takes position 16 and is hence in the last fourth of all countries. This position is an indication of the rather high social inequality, which is nonetheless better than in other Anglo-Saxon countries. Additional data show that

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[4] Australia, New Zealand, UK, Switzerland, Austria, Belgium, Germany, France, Italy, Netherlands, Denmark, Sweden.

the overall rather low performance of Australia is mainly caused by very modest incomes of the lower income groups, mostly dependent on social security benefits. These benefits appear therefore comparatively low in international comparison (ibid.).

Figure 3-3: Inequality of income distribution (Gini-coefficient)
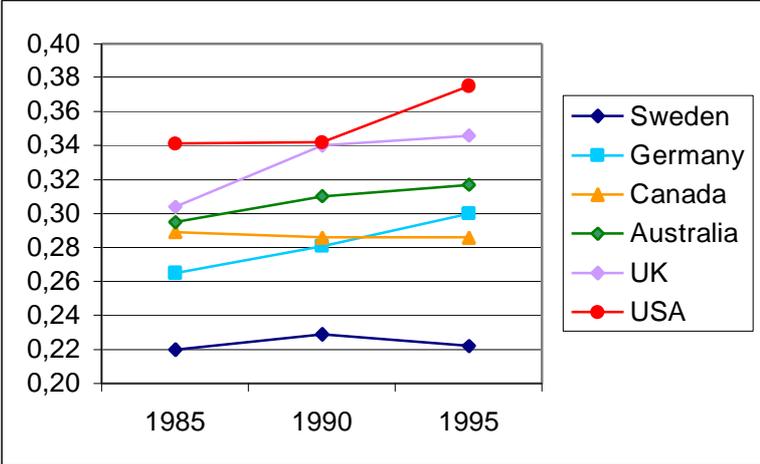
Source: Saunders (2001), own graphical illustration.

Changes in the income distribution over time demonstrate that Australia took a different route than the other Anglo-Saxon states (Fig. 3-3). Starting from almost the same level as the UK, inequality increased in Australia, measured by the Gini-coefficient much less than in the UK. In the US, already experiencing the highest level of inequality in 1985, the nineties again brought a drastic upsurge of income differentiation. The data for Sweden (and Canada) indicate that globalization does not necessarily imply a rise of inequality.

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[5] The Gini coefficient is an aggregate indicator for income inequality, based on the distribution of incomes; it ranges between 0 and 1. The higher its value, the higher is the inequality of the income distribution.

4. Capital cities compared: economic restructuring and globalization

In order to explore socioeconomic restructuring now from a spatial perspective, the next section will outline structural changes in the mainland capital cities over the last two decades. How did their economic roles change in that period, where was growth or decline located, were there shifts in the hierarchies between those cities? For the 1980s these questions will be looked at considering the structure and change in employment according to Singleman's five sectoral categories: extractive and transformative industries, distributive, producer, social, and personal services. This will be complemented by a description of structure and change in the sector producer services according to occupational categories. The restructuring that occurred during the 1990s and the resulting hierarchy of Australian cities will be presented in more detail using some additional indicators, like headquarter locations and activities of the cultural industries, characterizing the change towards knowledge-based, post-fordist urban economies.

4.1 The 1980s: new service jobs and a new occupational differences

With the worldwide economic slowdown beginning in the mid 1970s, a restructuring began that also can be shown for Australia. Old industries vanished as new sectors started to grow rapidly and the new ones had very different occupational structures than the old.

Employment structure and change by industries
The eighties were consequently a period of rapid change in the composition of the labor force of Australian cities. The main lines of that change are presented here[6]. Taking the *absolute numbers of employed* in the capital cities in 1991 it is obvious that Sydney has the largest labor force in all sectors, except for the transformative sector, in which Melbourne shows a slightly higher figure (Fig. 4-1a).

When compared on the *share each sector has of a city's total employment* (Fig. 5b) some similarities and differences between the cities emerge. The share of personal services figures at about 7% and is almost equal in the capital cities, only Melbourne lags behind. For the other categories, differences between the cities show up. In social services all cities have very high shares and Adelaide has the highest values, Sydney the lowest. Producer services

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[6] The following is based upon publications that used census data, providing comprehensive and spatially disaggregated data. In Australia censuses are conducted every five years and since the latest one was held in 1996, the next one will be conducted presently. The most recent results are therefore not yet available.

reach their highest share in Sydney, in the other cities they are far less important. As in social services all cities display high values for distributive services, with Brisbane at the top. Shares for the transformative sector are rather varied, with Melbourne highest in this sector.

Even stronger differences appear when the percentage change of employment in the cities is compared (Fig. 4-1c). In all cities the share of employment in the transformative sector declined from 1981 to 1991, except for Brisbane, where large population increases induced an expansion of the construction sector. Similarly the share of extractive industries decreased in all cities, this time Perth representing the exception, with a large increase probably related to suburban farming activities (Gipps et al. 1996). Overall the strongest expansion of employment occurred in personal services, the second largest in producer services. Brisbane recorded the highest growth rates in all service sectors, thus clearly improving its position in relation to the other cities in the eighties.

In the eighties the structure of the cities' workforces was still influenced strongly by social and distributive services, i.e. by providing services to their own and regional populations. Personal services as well as producer services grew rapidly. While the growth of the first is correlated to the shift from traditional manufacturing towards personalized direct services, the latter was caused by the shift towards production with higher knowledge content and liberalization of financial markets.

Figure 4-1: Employment in cities by industry

a) Absolute number in 1991 (1000)
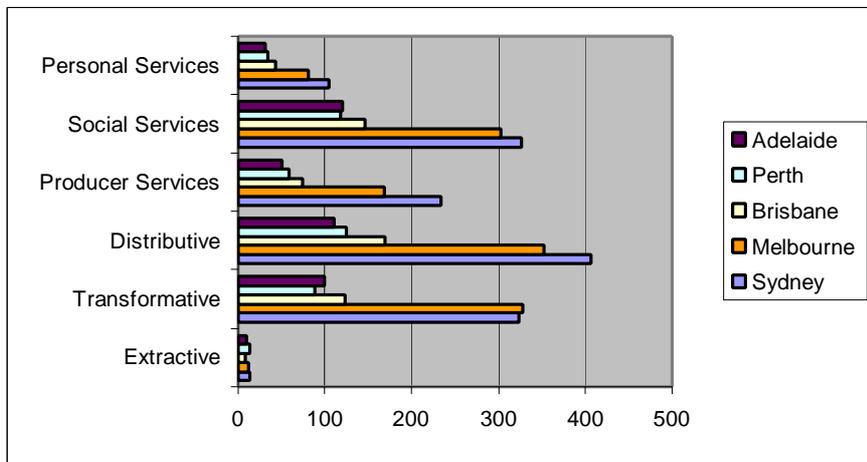
## b) Share of industries 1991 (% of total)
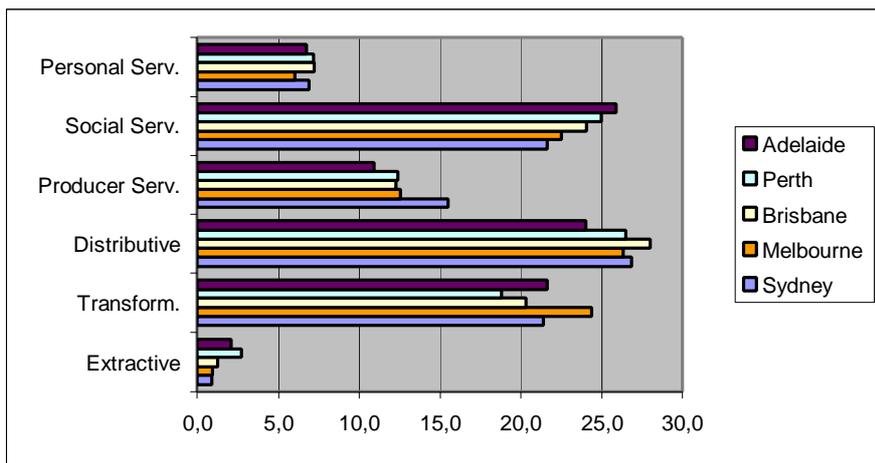
c) Change 1981-1991 (%)
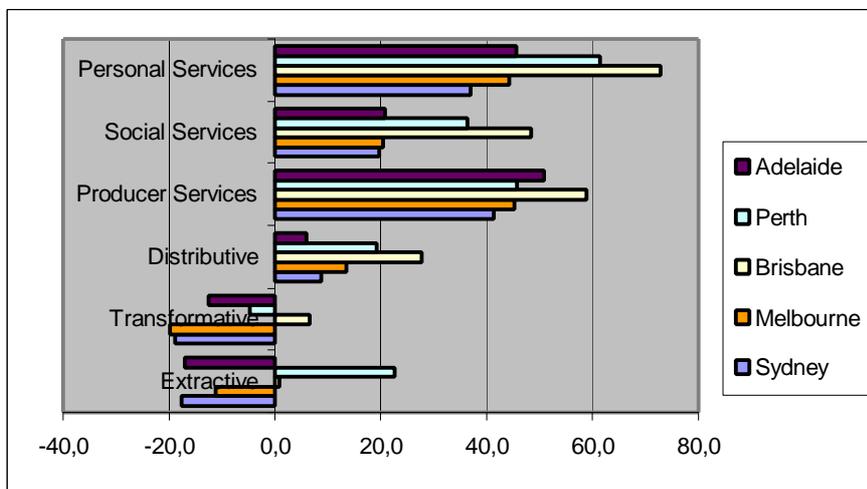
Source: Gipps et al. (1996), own calculations and graphical illustration.

*Occupational structure and change in producer services*

Disparities between capital cities and their differential development become clearer, when functional characteristics of the labor force are examined. Since producer services have proved to be very important for the differentiation between cities, an exercise similar to that presented for the five sectors is conducted here for producer services, this time regarding skill and qualification levels as represented by five[7] occupational categories. The category managers/professionals represents in general the highest skill and pay levels, operators/laborers the lowest, the other levels lying in between.

The dominant position of Sydney and, to a lesser extent, of Melbourne, as centers of producer services, is obvious in Fig. 4-2a from their higher *absolute numbers of employees* in all categories of producer services. In particular for the important managers/professionals group Sydney's dominance is obvious. However, the single largest segment within this sector by far are rather low qualified clerks, sales and personal service workers. In Sydney for example this segment comprises more than 100,000 employees. In all cities producer services are characterized by a sharply bifurcated labor force (Fig. 4-2b). About 60% of the total employment in producer services is concentrated in the two lowest level categories (operators/laborers/clerks/ sales and personal services), about 30% in the highest, the manager level. The middle level, tradespersons, comprises only a very small fraction of total producer service employment in all cities. In Sydney and in Melbourne this dichotomous structure is even more pronounced.

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[7] The five levels are: (1) Managers, administrators, professionals, (2) Para-professionals, (3) Tradespersons, (4) Clerks, sales & personal service workers, (5) Plant and machine operators and drivers, laborers and related workers (cf. Gipps et al. 1996). The data for the sixth category ‚Inadequately described/ Not stated' are not given here.

Figure 4-2: Employment in cities in producer services by occupation

a) Absolute number in 1991 (1000)
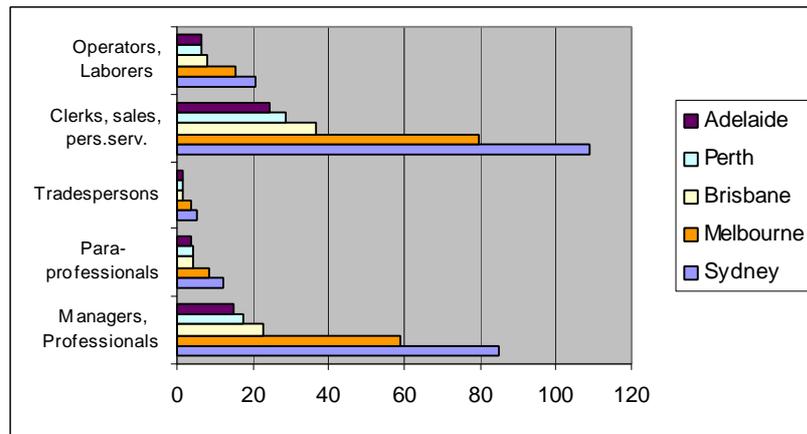
b) Share of occupations (% of total)
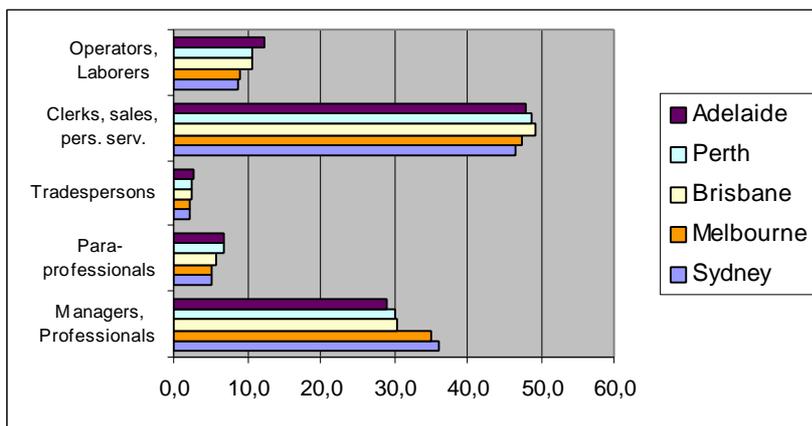
c) Change 1981-1991 (%)
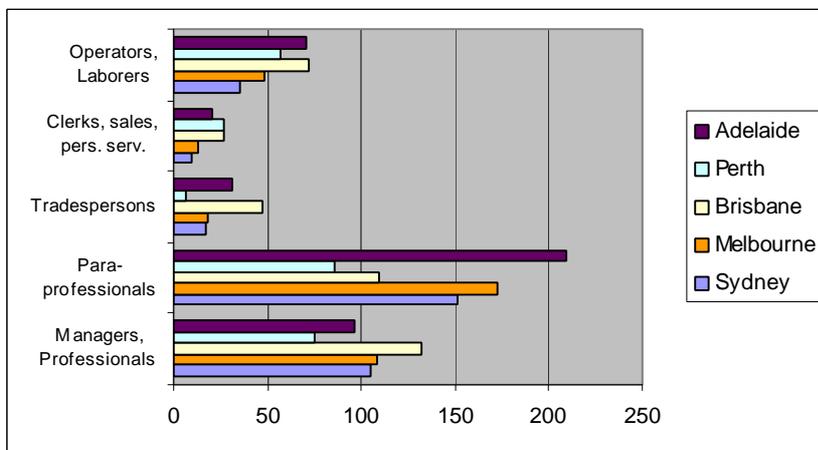
Source: Gipps et al. (1996), own calculations and graphical illustration.

These differences are correlated to recent changes in occupational structure. From 1981 to 1991 the two highest occupational levels recorded much stronger increases than the lower level occupations (Fig. 4-2c). The changes as sketched here for producer services are similar to the changes in other industries and indicate that the smaller capital cities, especially Adelaide and Perth, lost overall head office functions to Melbourne and Sydney (Gipps et al. 1996).

4.2 The 1990s: towards the knowledge-based economy?

These shifts continued in the following decade and can be demonstrated in more detail since statistical data gathered from the 1996 census onward differentiated producer services into the two subsectors, *property and business services* on the one hand, and *finance and insurance services* on the other. In addition, a nationwide analysis of employment and population data covering all 58 Statistical Divisions (SDs) of Australia revealed significant changes in Australia's urban and regional structure that vary for different sectors (Stimson et al. 1998). This study applied two main indicators compiled for every SD: 1) the change in the share of national population (1986-1996) in relation to the change in the share of national employment in that period, indicating a match or mismatch of those factors in a certain SD; 2) the number of workers in a sector per 1,000 residents.

Taking a look at the aggregate figures for the first indicator, i.e. the changes in the shares of population to *total employment,* reveals that the SDs containing the two largest cities, Sydney and Melbourne, are among those SDs where shares of population declined at a greater rate than the shares of employment, which is also valid for Adelaide. The opposite is true for the Perth and Brisbane SDs, population shares grew less than employment shares. Overall there was thus a certain decentralization away from the two largest centers with regard to employment.

Producer Services
This stands in distinct contrast to spatial trends of employment in *producer services* (ibid.). Sydney ranges second among the SDs attaining the highest growth in their share of national employment in producer services. Only one SD, Moreton, surrounding metropolitan Brisbane, recorded a higher relative growth of its share of national employment. Other SDs gaining

shares were Perth and Canberra, while a large number of SDs lost shares of national employment in producer services, including Melbourne and Adelaide.

Measured by the second indicator, the number of workplaces in producer services per 1,000 residents, Sydney evidently has a leading role among Australia's metropolises. In all capital cities, except for Adelaide, the figure for workers in producer services is above the Australian average, but with 84 producer service workers per 1,000 residents Sydney exceeds the national average by the largest amount (Fig. 4-3).

Figure 4-3: Number of service workers per 1,000 residents (1996)
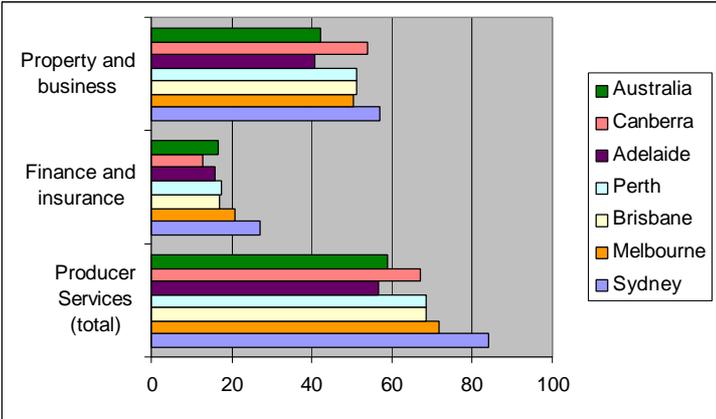
Source: Stimson et al. (1998), own graphical illustration.

If the national average of workers in a sector is taken as 100 it can readily be seen that Sydney's lead is mainly caused by its role as center of *finance and insurance services* (Fig. 4-4). In the latter subsector Sydney exceeds the national average by more than 60%. Melbourne, ranging as the second important city in that sector, is only 26% above the national average.

Figure 4-4: Index for number of service workers per 1,000 residents (Australia=100)
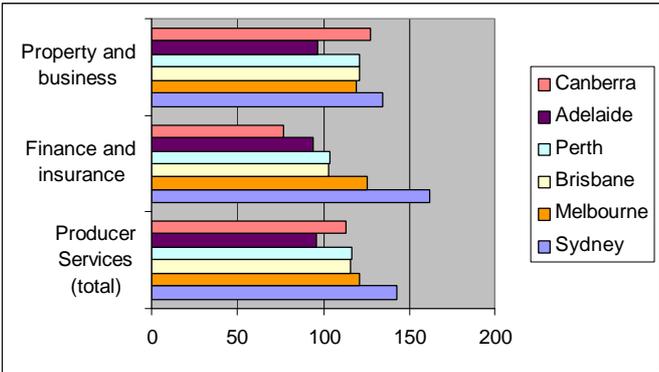
Source: Stimson et al. (1998), own calculations.

In *property and business services* Sydney's leading role is also visible, even if less marked. In this subsector shifts of national shares were smaller overall. Among SDs that have gained were metropolitan Brisbane, and again surrounding Moreton SD (the 'sunbelt metropolis'), metropolitan Perth and the Illawara SD south of Sydney. These SDs surrounding the capital cities are parts of *mega metropolitan areas* that emerged through dispersal around the centers (O'Connor/Stimson 1995).

Headquarters of national firms and locations of research and development

Two other rather simple but telling indicators for the economic significance of the capital cities can be applied, the number of headquarters and the level of office rents. Headquarters in general represent the most important locations in the whole national and international network of establishments of firms and indicate where decision making and higher qualified activities of firms are localized. The level of office rents is a rough, composite indicator for the valuation of space by firms.

Table 4-1: Location of headquarters and office rents in capital cities

	No. of headquarters of top 100 firms 1995	Estimated nominal office rents $ per sq. Meter 1999
Sydney	54	625
Melbourne	33	300
Brisbane	3	350
Adelaide	4	210
Perth	4	425
Hobart	2	n.a.

Source: O'Connor et al. (2001)

Both indicators once again demonstrate Sydney's leading role among Australian cities (O'Connor et al. 2001). The majority of the largest Australian firms headquarters are located there. Landowners collect office rents that are on the average twice as high as in other Australian cities.

Finally, a brief overview is given over the location of *research & development investment* and the location of *Cooperative Research Centers* in Australia.

As pointed out earlier R&D activities are a prime factor for competitiveness in the global strive for the attraction of knowledge-based industries. Available data for expenditure in R&D, broken up by the funding institutions, are depicted in Fig. 4-5 for the larger Austra-

lian states[8]. Apparently, the by far largest amount of R&D expenditure derives from the *business sector* and is spent in New South Wales, with Victoria close behind. In expenditure of *higher education* institutions NSW clearly leads again, followed by Victoria, but differences to other states are smaller. Only in (much smaller) R&D expenditure of the *Commonwealth Government* Victoria outpaces NSW, *State Government* expenditure is again largest in NSW. Thus the Sydney region probably receives most of R&D spending in Australia, Melbourne being next. Though, the difference in R&D spending between those two regions appears smaller than for many other indicators applied above.

Measured by *per capita* values Victoria even outpaces NSW in business R&D, since its population is significantly smaller and the absolute amounts are not that different. For higher education, the largest contribution to overall R&D expenditure, per capita values for R&D are rather similar across all states (cf. TIAC 2001).

Figure 4-5: R&D expenditure by funding sector and state 1995 (in m$)
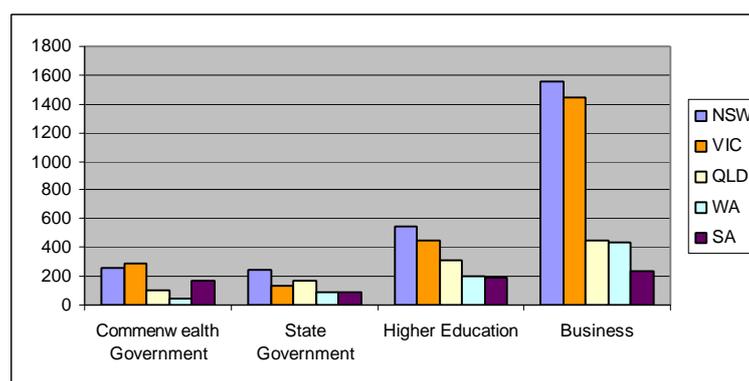
Source: TIAC (2001), own graphical illustration.

A further indicator for the spatial distribution of R&D activities is the *location of Cooperative Research Centers* (CRCs). About 70 such centers exist in Australia, most of them with multiple locations (TIAC 2001). Funded by state and private institutions, they are, potentially, important nucleuses of innovation, important to overcome Australia's weaknesses in advanced technologies and network formation. Like all economic activity, the vast majority of CRS is agglomerated in the urbanized East and South-East of the country (Fig. 4-6).

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[8] It can be assumed that the largest part of R&D expenditure made in any state in each of these categories will take place within the largest respective urban agglomeration.

Figure 4-6: Locations of Cooperative Research Centers
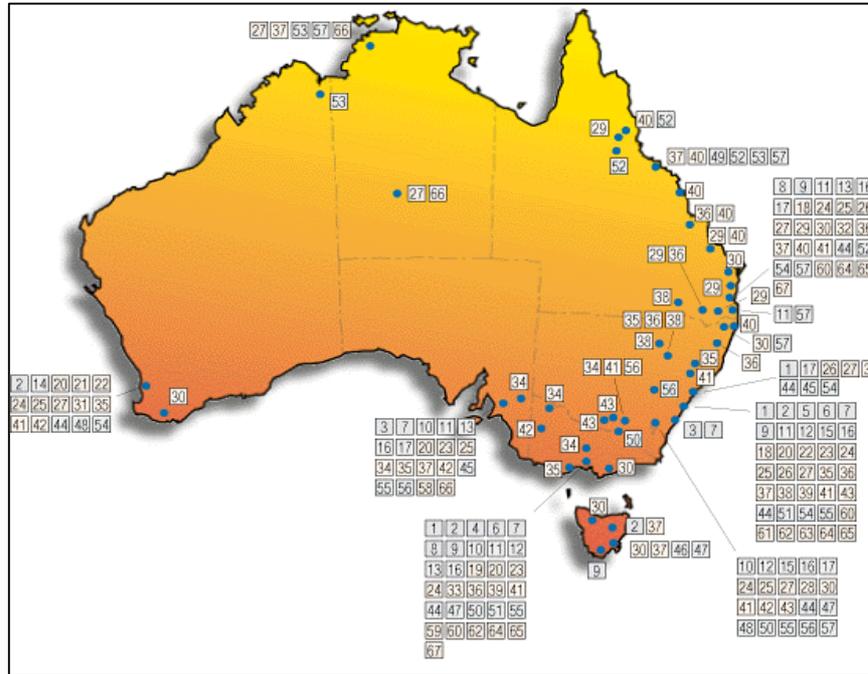
Source: www.isr.gov.au/crc/centres/append/app5.html.

Most of the locations are clustered in or around the capital cities, some are scattered in the urbanized areas off the coast. When for each capital city, locations in the vicinity of that city are added to its proper CRC locations, a hierarchy of regions emerges. The approximate number of CRCs is largest for the Sydney region (44), followed by Melbourne (34), Brisbane (28), Canberra (20), Adelaide (20) and Perth (16). Sydney then once again is situated on top of the hierarchy with Melbourne being next. As indicated above for R&D expenditure disparities between capital city regions are again less pronounced for the CRCs. R&D activities attribute less to spatial differentiation than producer services, in particular those of the financial sector, and headquarter locations.

4.3 Multinationals, global links and culture industries

In the foregoing analysis the tendencies of restructuring within and between Australian capital cities were described using mainly aggregate data. In this section data about the location of multinational company headquarters and about infrastructural links necessary for external economic relationships will be evaluated to assess the relative position of Australia's major cities. In addition, information about the diverging importance of the cities in the field of culture industries will be given, representing a view that cuts across the previously applied sectoral delimitations.

Headquarters of multinationals, producer services and financial activities

Indicators for Sydney's prominent role on the national level were presented in the previous section, in the following its international functions will be considered and compared to those of other capital cities, though the national and international levels of course overlap to a certain extent. Sydney accordingly not only hosts the headquarters for the majority of national Australian firms, but is additionally a center for regional headquarters of multinational corporations (RHQs of MNCs), directing and controlling their activities in the Asian Pacific Region from there. Roughly 62% of all RHQs of MNCs active in Australia were situated in Sydney, twice as much as in Melbourne (Tab. 4-2). A recent figure for the total of foreign MNCs in Sydney, given by the City of Sydney, is 275 corporations[9]. The overwhelming majority of those MNCs are based in the US, UK and Canada, hence English speaking countries strongly influenced by their Anglo-Saxon heritage and culture, which is of significance for their corporate activities. The Australian labor force, also belonging to the Anglo-Saxon sphere, on the one hand, and offering one of the most cosmopolitan populations of the western world, on the other hand, represents an extremely rich reservoir of workers for MNCs to conduct their business with the fast growing and huge economies of the Asian Pacific world. In large cities like Sydney, the largest pool of workers offering these advantages can be found. For complicated non-routine transactions between economic agents in different countries and cultures, typically the main task of RHQs, these cultural assets are an important prerequisite.

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[9] www.cityofsydney.nsw.gov.au.

Table 4-2: International Activities (mid 1990s)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra
RHQs of MNCs (%)	61.8	28.5	3.0	3.9	2.7	-	-
Freight forwarders	240	157	60	51	55	6	-
Foreign banks	155	27	-	1	2	-	-
Bank head offices	39	5	4	3	2	2	1

Source: compiled by DUAP (1998) from various sources.

They are also of importance for any other activity listed above. Freight forwarders, foreign banks and bank head offices are all involved in world wide exchange processes, where proficiency in English, knowledge of other languages and familiarity with foreign business culture are of great advantage.

Sydney's predominance among Australian cities with regard to international activities is, as in the national context, most striking in the *financial sector*. Locations of freight forwarders are, for instance, less unequally distributed. But foreign banks are overwhelmingly concentrated in Sydney, a small fraction in Melbourne. In other capital cities hardly any foreign bank locations exist. Head offices of Australian banks similarly cluster in Sydney, but in this case the other capitals also get a piece of the cake, from five locations in Melbourne down to one in Canberra. It is hence mainly the international financial activities that distinguish Sydney from other Australian cities. In addition Sydney accommodates headquarters of important Australian state controlled institutions, the Reserve Bank of Australia, the Australian Stock Exchange and the Sydney Futures Exchange. These larger financial institutions are supported by many smaller firms like rating agencies, executive search firms and firms of the producer service complex. On top of that, the headquarter of the largest Australian insurance company (AMP) is in Sydney (Murphy 1999). Together with national headquarters of other Australian firms and regional headquarters of multinationals, these institutions have developed a dense web of economic relations.

Among *producer services,* it is mainly in accounting, advertising, consulting, and international real estate management, where Sydney takes a prominent position in the Asian Pacific. Following often quoted figures Sydney was in 1990 the location for 39% of the headquarters of the top 20 multinational firms in those fields, 10% being located in other Australian cities, 32% in Hong Kong, 13% in Tokyo, and 6% in Singapore[10]. More recent data and a detailed discussion of Sydney's role in the global hierarchy of cities will follow in section 5.

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[10] Langdale (1991), cited in Searle (1996).

A national survey of producer services compiled by the ABS (2001d) from different statistical sources reveals that in 1998/99 NSW, and thus the Sydney region, is leading in some sectors but not in all. Together with Victoria, NSW accounts for 75% of national employment and 78% of income in the *computing services* industry. In *real estate services,* NSW firms earn 34% of national income of that industry, firms in Victoria 26%. In *market research,* the dominant status of NSW is striking, 50% of total industry employment and 53% of total industry income derives from NSW firms, Victoria accounts for only 31% of total industry income and employment. Only in the *consultant engineering services* does Victoria surpass NSW. In 1995/96, 29% of national income in consultant engineering was earned in Victoria, marginally exceeding NSW where 28% of the total national income was made.

Global infrastructural links

These high levels of employment and income concentrations, and trade in goods and services can only come about when the necessary infrastructure facilities are available in high quality and sufficient quantity. Sydney's sea ports and its airport, and the telecommunication linkages are inexorably linked to its role in the global economy.

Searle (1996) estimates that about 12% of Australian exports were handled in 1991 through its *sea ports* (Sydney, Port Botany and Kurnell), a rather small figure reflecting the importance of agricultural and mineral exports that are exported via other ports. Nonetheless, almost 200 head offices of the 500 top Australian exporter firms are to be found in Sydney, related to its advantages for the location of higher level functions of export, such as management, financing, and marketing. In the handling of imports, Sydney's role in international trade is much stronger, approximately 40% of Australian imports arrived at its sea ports.

The harbor plays an indispensable role for Sydney. Besides the handling of goods, it offers a multitude of uses and functions, which together make it 'Sydney's heart' as Daly (1998) pointedly concludes, alluding to both the symbolic and material value of the harbor. Much of the economic vibrancy of Sydney's inner areas is linked to commercial and recreational activities that are connected, both directly and indirectly, with Sydney harbor. Among commercial uses shipping activities are an important factor. These comprise about 80 shipping lines providing 150 regular services to destinations all over the world, 350 charter vessels carrying three million passengers per year, Sydney Ferries transporting 13 million passengers per year by 250 trips per day and a fishing fleet of 85 vessels. For international tourists visiting Sydney, the harbor is a prime attraction. In addition, Sydney harbor is an important naval port for Australia and then, there is the enormous variety and quantity of recrea-

tional activities. Alone 7,000 moorings were counted; there are dozens of marinas, rowing and yachting clubs. All water based activities create additional demand on land, from extensive needs for space to installations for maintenance and support. The number of wharves offering these services has increased over the last years. Now 87 publicly accessible wharves exit and a large number of trade related wharves.

In *air transport* Sydney's international airport is the principal hub for Australia's links to the rest of the world (cf. Searle 1996) making it a gateway city. Compared on direct international air links, the Sydney airport has roughly double the number of international destinations (152) and international departures per week (297) that Melbourne or Brisbane have, which are the next international airports of importance in Australia. With 39 airlines the Sydney airport is also home to the largest number of international air transport enterprises, followed rather closely by Melbourne with 36, but by far outnumbering Brisbane with only 20 international airlines.

For knowledge intensive activities of global cities, telecommunication facilities provide the necessary backbone. Sydney, as a node in Australia's international telecommunication linkages and a center of higher level functions in the related industries, has acquired the principal position within Australian cities. Besides hosting the overseas telecommunication activities of Telstra, it is home to C&W Optus[11], and the headquarters of five free-to-air television companies and the new pay-TV companies (Searle 1996).

Sydney's nodal role in telecommunication can be seen in its large shares of high speed data lines and international 'traffic' from Australia (cf. Newton et al. 1997). High speed data lines were heavily concentrated in NSW and Victoria, i.e. in metropolitan Sydney and Melbourne, accounting for about 44% and 33% respectively, of the total number of lines. In international business traffic, the shares of the cities diverge still stronger. Sydney's share reached almost 50%, but Melbourne only 26%, with all other capital cities clearly less than 10% of the Australian total.

Culture industries

Many of these intense international telecommunication activities are due to producer services and headquarter functions located in Sydney. These activities (e.g. advertising) partially inter-

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[11] Telstra is the former state controlled monopolist, now partially privatized telecommunication company of Australia. C&W Optus, newly created after deregulation of the communication, is its major competitor. Telstra still dominated the market with a share of 82%, C&W Optus has about 12%, the remaining 6% are divided among 29 other carriers (ATSE 1999).

sect the *culture industries*[12] that contribute ever more to many large cities' output and employment, as has been shown convincingly by Scott (1997, 2000) in particular for Los Angeles and Paris. Even in Los Angeles, which is (except for Hollywood) rather prominent for being a world center of high technology industries, the share of the culture industries rivals the share of high technology industries. In Sydney, the culture industries also comprise important segments of the workforce, more so than for the rest of the nation. In *media and publishing* about 36% of total national employment was concentrated in Sydney in 1998, almost double that of Melbourne's 19%, followed by Brisbane with 9% (O'Connor et al. 2001). The Murdoch and Packer media conglomerates, for example, are located in Sydney along with many other 'new media' firms.

Additionally Sydney is Australia's major center for *film and television program production* with 450 film groups and a new studio of Fox , the major movie corporation (Searle 1996, Daly 1998). Measured by the percentage of filmed output, NSW was leading among Australian states, contributing 56% to the nation's total in 1996/97[13]. NSW has attracted high budget runaway productions from the US and its post-productions firms have gained major contracts from overseas producers (ibid.). Other locations in Australia compete with NSW. On the Gold Coast, Warner Bros. opened studios and in Melbourne, the 'Digital Docklands' is under way, aiming to establish a network of media and ICT firms. The digitalization ongoing in the film industry offers new opportunities for Australian firms (as in post-production, special effects, or animation) for overseas producers (Bishop et al. 2000). At the same time there are also serious challenges, since the Australian film industry is relatively small in international comparison, and polarized into a few large foreign owned players and many small domestic firms competing fiercely with one another. In addition, problems of access to and cost of high-bandwidth telecommunication capacity seriously hinders the prospects of Australian firms (ibid.). Though outsourcing from overseas producers can spur domestic development in Australia, it should also be noted that highly paid creative and upper managerial jobs often remain in the home country of the producers.

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[12] Scott (1997: 324) uses a wide definition for cultural products, including manufactures from traditional sectors (e.g. jewelry, clothing), personalized transactions (e.g. theater, tourist services) and hybrid forms (e.g. music recording, film production). In spite of their heterogenity in 'substance, appearance and sectoral origins' they all 'function at least in part as personal ornaments, modes of social display, aestheticized objects, forms of entertainment and distraction, or sources of information and self-awareness.
[13] Australian Business Foundation (www.abfoundation.com.au) reporting work of Choon Tan.

5. Sydney, Hong Kong, Singapore: competing world cities of Asia Pacific

While Sydney's dominant role in the national Australian context is obvious in many, though not all, areas of the economy, its functions and position in international hierarchies of cities are far less clear. In the rivalries among the large cities of the Asian Pacific region, Hong Kong and Singapore are the major competitors, but other large cities like Kuala Lumpur, Jakarta and Manila are also increasingly attracting international functions. How can Sydney's position in the global arena of cities then be characterized, given the continued, if not reinforced, economic power of large American, European and Japanese metropolitan areas?

The question of how a single city's role on the global level can be characterized has of course interested researchers since the emergence of large empires such as the Roman or the British Commonwealth, where power and wealth were concentrated in major cities like Rome or London and subordinate functions were performed in many other cities scattered over vast areas. But only with the globalization processes of the recent decades can it be said that the large cities of most developed or developing nations of the world have been drawn into one single, interlinked hierarchy of economic strength and power. This hierarchy, however, is not one-dimensional nor can it be described by a simple pattern, but rather it is built around many factors and consists of partially overlapping subgroups.

Furthermore, the hierarchical position of single cities is not stable over time. Dramatic ups and downs in the hierarchy have been seen. One example is the emergence of Tokyo as a leading center for head offices of the largest banks and for headquarters of large industrial corporations, taking over New York's once undisputed lead within the period from the 1960s to the late 1980s (Short et al. 1995). This rise was rather sharply interrupted with the financial crisis in Asia in the late nineties and only recently has Tokyo's significance for financial industries started to increase again, since decreasing property prices and currency ratios have made Japan more interesting for foreign investors (Sassen 1999).

Research on *world* or *global cities* had gathered momentum since Friedmann and Wolff's (1982) pioneering work on 'world city formation' and Sassen's (1991) work about the 'global city', presenting extensive material on the concentration of global financial and producer service industries in New York, London and Tokyo. Meanwhile a large body of work has explored the hierarchies and relations that exist between world cities, national territories and the global flows of capital, information and people as well as the roles that single cities play in those hierarchies. The *Globalization and World Cities Study Group and Network*

(GaWC) at the University of Loughborough[14] has established itself as a major center and forum for research on these topics over the past years and much of the following will relate to results produced or published by that group. In general, world or global cities are defined as those cities, where major agglomerations of international industrial and financial corporations' headquarters are located, involved in close transactional activities with other firms especially large producer service providers, like those in law, accounting and advertising. The 'leading' world cities on the global scale are, according to most authors, New York, London, Tokyo, and some include Paris, too. In some world cities, such as Los Angeles, important shares of high technology industries and of research and development activities are concentrated in addition to producer and financial services. In order to better understand Sydney's role in the global arena of leading cities, the main findings of world city research will be summarized, concentrating on Sydney's position and those of its main competitors in the Asia Pacific region, Hong Kong and Singapore. This concentration is not meant to deny other cities' important roles in the region but only to clarify the focus of this report.

5.1 Approaches to define world cities and global cities

Research approaches on the world's major cities over the past 50 years can be connected to the different phases and dominating trends of the global economy. In the following section, several perspectives on the global system of cities are differentiated that relate to three phases of structural change in the world economy from (1) the boom years of the 1950s and 1960s, over (2) the rapid expansion of foreign direct investment into the NICs in the 1970s to (3) the deregulation and globalization of financial markets during the 1980s when unstable and highly unequal growth patterns came to prevail, which have lasted into the first years of the present century.

The multinational corporation and the urban hierarchy

In the first phase of world city research, work concentrated on metropolitan structures that had developed as a result of the long and fairly stable fordist growth phase around the late sixties and early seventies. Peter Hall's (1966) work was the first to draw a coherent picture of the growth and functions of major cities in the industrialized countries. Presenting extensive material on New York, London, Paris, Tokyo, the Randstad, the Rhine Ruhr region, and also

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[14] http://www.lboro.ac.uk/gawc

Moscow, he put these metropolitan areas into relation to contemporary urban patterns and trends, taking into account their roles in politics, culture, and technology. Economically, the most significant process at that time was that the large integrated industrial corporations in this fordist phase of rather undisturbed growth had concentrated many of their headquarter activities in the centers of metropolitan areas of western countries and started to expand their markets internationally. Hymer (1972) analyzed the distribution of headquarters of the largest multinational corporations in major cities of the western world, and the close interactions between corporate headquarters, the financial sector, government and urban service providers, often dependent on direct face-to-face contact of leading officials or managers. The highest corporate functions could then be expected to be located in the highest ranking cities. Manufacturing was typically performed in adjacent suburban areas and national peripheries.

The 'new' international division of labor and world cities

During the 1960s and 1970s exports of manufactured goods from western countries were increasingly complemented and in part replaced by foreign direct investments. The NICs in particular received ever larger amounts of capital investment from highly developed countries. These countries started to shift their own exports steadily from raw materials towards manufactured goods. In a first round of global restructuring, industrial capacities, mainly in light industries like textiles or electronics, shifted from Western countries towards the European periphery (Jugoslavia, Portugal) or countries like Mexico, Brazil, South Korea, Hong Kong and Singapore. Production facilities for standardized mass products could be easily relocated or newly set up in these NICs with low labor cost, huge supplies of workers and often authoritarian employment regimes. Transport costs for manufactured goods were in general no impediment for worldwide distribution since large quantities of standardized goods were handled, which keeps unit costs for transportation low. Core activities of corporations like strategic and financial management, research and development remained in home countries. Accordingly, many urban regions in highly developed countries began to feel restructuring in unprecedented ways for the post war period. The number of 'blue collar' jobs in manufacturing industries declined dramatically while 'white collar' jobs increased, both in absolute and relative terms. An important empirically based contribution to world city research in that period was presented by Cohen (1981), exploring the locations of about 200 large non US corporations. He identified London, Tokyo and New York as 'world centers of corporations and finance', below which a second level of world cities like Chicago, Osaka, and the Rhine-Ruhr region. The main theoretical contributions originated from John Friedmann and Goetz

Wolf (1982) 'world city formation' and Friedmann (1986) 'world city hypothesis' that aimed at placing the emergence of a global urban hierarchy in the context of global economic trends in that era. From their view, a global hierarchy of cities was in the making, where a system of prime and secondary cities in core and semi-peripheral countries function as 'control centers' for organizing and the new international division of labor. These cities attract the top activities of the manufacturing sector, the financial industries, producer services, international institutions and many of these cities are also major concentrations of population. In Friedmann's writings the global hierarchy of cities is represented mainly by 30 world cities differentiated into those that 'articulate large national economies into the system, such as Paris, Madrid, and Sao Paolo; others have a commanding multinational role, such as Singapore and Miami; and still others, such as Chicago and Hong Kong, articulate important subnational (regional) economies' (1995:23). With the shrinking share of manufacturing jobs, an expanding share of low paid service jobs, often taken by immigrants, and the increase of well paid jobs in producer services, these world cities are characterized by a mounting social polarization.

Globalization of financial and producer service industries and global cities

The 1980s brought important changes in the level and structure of global financial flows and industries and the globalization of production and specialized producer services. The strong expansion and heightening concentration of these sectors resulted in the consolidation of New York, London, and Tokyo as the leading 'global cities' (Sassen 1991, 1994)[15]. While in the 1970s international financial activities were dominated by large transnational banks engaged in traditional banking business, the 1980s saw the rapid growth of investment banks and securities houses, developing whole new financial instruments, many purely aimed at speculative purposes. This 'transformation of global capital markets into a new supranational order is continuing' and 'the emerging financial system will sharply differ from earlier versions' (Sassen 1999:75). Capital flows increased strongly and shifted away from the less developed world and towards highly developed countries fuelling the growth of financial industries in the major financial centers and a double concentration process was into motion (ibid.). (1) On the global scale the leading financial centers attracted ever more financial capacities. For instance, in the late 1990s control over 83% of the world's institutionally managed equities was performed in only 25 cities, roughly 33% percent of that control capacity was centralized in the leading centers London, New York and Tokyo. At the same time these three cities account for almost 60% of the foreign exchange market. (2) On the national scale many countries ex-

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[15] New editions of both these books were recently published.

perienced a transformation in the locational structure of their financial sector, with the emergence of a single dominating financial center. In Brazil Sao Paulo gained financial capacities in relation to Rio de Janeiro, in Canada Toronto overtook Montreal, and in Australia Sydney outpaced Melbourne.

The radical innovations in ICT have significantly eased the rapid growth of money and capital flows and the locational restructuring of financial activities. But, even in this sector, where resources can be shifted across the globe with just a mouse click and almost instantaneously, location still matters for many sorts of economic activities, even to a growing extent. On the one hand, it is less costly and time consuming than ever to gather or spread information, offer services and transport people to distant locations, which allows corporations to decentralize their activities geographically. On the other hand, the more dispersed a firm's activities are across different national markets or economic sector, the more coordination and control activities, especially on the top management levels are required. This latter effect reinforces the role of dominant cities, since these coordination, management, control and decision tasks can only be solved by direct, frequent and oftentimes complicated information exchanges between leading and highly specialized personnel.

Globalization of production continued and with continuing deregulation and liberalization in many countries of the western world, the breakdown of the state socialist block in the early 1990s foreign direct investment increased strongly. For OECD countries the percentage of foreign direct investment flows to GDP increased from 0.5% in 1981 to about 1.5% in 1992 and 3% in 1998, that is almost six fold in less than twenty years (cf. Miyake/Thomson 2001). As concerns the less developed countries, Southeast Asia became the major focus for direct foreign investment at the expense of Latin America.

This period of accelerated globalization of industrial production coincided with the rapid globalization of producer services. Many large international firms have over the past decades outsourced important service functions that are necessary to their operation but do not belong to their core competencies. Such service functions are now provided by specialized firms such as accountancy, advertising, law or management consulting firms. These specialized service providers have themselves globalized and developed global networks of affiliates or other forms of partnerships offering their services now worldwide in almost any economically important large city of the world. Many such services offer only limited potential for standardization and have to be adapted to national or local market conditions (like regulatory frameworks or cultural specificities) which implies that successful service firms prefer to locate close to their customers, often in the same urban areas. When particularly valuable and

confidential information between customer and client is transferred, complicated contractual problems are dealt with, or flexibility to changing market conditions is necessary, frequent personal contacts between leading officials are required. These kinds of exchange processes are significantly facilitated under conditions of spatial proximity. One reason is the direct cost of such exchanges, which can be comparatively high if highly qualified personnel is forced into time consuming travelling, the other reason being that spatial proximity of business partners often includes socio-cultural closeness which will tend to lower transaction costs.

All three of the aforementioned types of approach added to our knowledge about the development of world cities and possible structures and relations that exist between them. Still, when analyzing the early contributions of world city research, Short et al. (1996) diagnosed a 'dirty little secret' in this kind of work. This deficiency is simply given by the fact that telling, internationally comparative statistics on attributes of world city status are rarely available and that many authors basically repeat widespread contentions without adding new substantiation.

The authors present some new data and combine it into a ranking of potential world cities (Tab. 5-1) where economic command functions (major banks, largest stock exchanges, number of headquarters) are supplemented by air traffic and population data and information about cultural major events (Olympic Games, Rolling Stones concerts). The ranking for air traffic data figure as an approximation for the degree of international accessibility, though these data are not easy to interpret since there is no differentiation between business and private travelers and some airports function as important transit stops to other destinations. The number of important cultural events indicates a city's ability to participate in the global race to attract 'global spectacles' and gain attractiveness as a location for the culture industries. There is additionally a ranking according to the size of the cities, showing how such a standard measure for a city's importance compares to the other variables. As is obvious from the comparison, there is quite little correlation, with the exception of Tokyo. Many megacities of the less developed world are not listed in the table, and hence many rank numbers for population are missing.

As in most work about world cities Tokyo, London and New York occupy the top positions of the rankings, especially with regard to the three indicators for economic command functions. Rather surprising, however, is the prominent position of Paris. And then there is a group of cities, e.g. Frankfurt and Osaka, showing rather high rankings for two indicators and some, like Beijing and Seoul, showing relatively high values for one indicator, possibly these are emerging world cities.

Table 5-1: Rankings of world cities[a]

City	Economic command functions			Accessi-bility	Size	No. of major cultural events	
	Banks[b]	Stocks[c]	Head-quarters[d]	Air Traffic[e]	Population[f]	Olympic Games[g]	Rolling Sto-nes[h]
Tokyo	1	2	1	6	1	1	1
London	5	3	3	1			2
New York	4	1	2	5	5		
Paris	2	4	7	2		2	3
Frankfurt	3	5	13	3			
Amsterdam	12	9		7		2	
Seoul		12	5	13	4	1	
Brussels	7			17		2	3[i]
Munich	9		9	20		1	
Zurich	14	7		9			
Toronto	11	6		16		2	
Osaka	6		6		6		
Los Angeles			15	11	13	1	
Mexico City					2	1	2
Singapore		14		8			
Beijing	8					1	
Hong Kong		8		4			
Madrid			12	18		2	
Milan	10	11					
Rome	13		10	12			
Montreal	15					1	
Buenos Aires					10		2
Moscow					11	1	
Sydney		10				1[j]	

a) Includes cities ranked among the top fifteen cities in any two or more categories.
b) Hundred largest banks' head offices, 1995.
c) Major stock exchanges in the world, 1992.
d) Headquarters of the world's largest industrial corporations, 1993.
e) Airports having world's highest international passenger traffic volume, 1992.
f) Ranking of world's largest population centers, 1991 (United Nations Demographic Yearbook).
g) Cities which have hosted (1) or applied for hosting (2) the Summer Olympic Games since 1964
h) Concerts of the Rolling Stones World Tour, 1995.
i) Three concerts in Wechter, Belgium.
j) Host City, 2000.

Source: Short et al. (1996)

In Asia Pacific, Hong Kong is leading on the stock exchange indicator, closely followed by Sydney, and then Singapore. So all three cities play roles of some importance on that count. But none of the world's largest industrial corporations nor the largest bank head offices are located in one of the three cities. Hong Kong and Singapore, however, range as important air traffic hubs, and Sydney, with the Olympic Games 2000, emerged as a location for a 'global spectacle'.

For two indicators of Sydney's position in the Southeast Asian Pacific region, more recent and specific data are available that should be added here. The first indicator describes the distribution of regional headquarters, the second gives an approximation of accessibility by the numbers of yearly airport passengers.

1) As mentioned above, data from the early 1990s suggest that Sydney was home to 39% of the regional head offices of producer service firms, Hong-Kong had 32% of such establishments and Singapore 6%. More recent data covering a wider range of economic sectors, however, draw a very different picture of the distribution of regional headquarters in the three cities. In a study published by the Economist Intelligence Unit (cf. APG 2001) exploring activities, organization and management structures of 8,000 multinationals of North American, European and Japanese origin operating in the Asian Pacific region, Sydney is a base for only 5%, Singapore, however for 30% and Hong Kong for even 35% of the companies surveyed. In spite of Sydney's many attractive factors, most multinationals view the lack of an 'Asian' identity, Sydney's geographic distance from key regional markets, and the relatively small Australian market as decisive disadvantages.

2) In an international comparison for accessibility of the early 1990s, i.e. total traffic measured by millions of passengers, the Sydney airport ranked with 14 million on the 24th position, right behind Hong Kong or Amsterdam, both having 15 million passengers. Larger global cities' airports like those of Tokyo operated with 47 million, those of New York, with even 78 million passengers.

According to recent data it appears that the number of passenger at Sydney airport has increased less than those of other major airports. In the list of the 30 busiest airports in the world, the Sydney airport is not listed (cf. ACI 2001). With now 80 million Atlanta is first in this listing, Boston is with 27 million passengers on the last position. Hong Kong now has 33 Mio. passengers taking rank 22, and Singapore records 29 Mio. passengers reaching rank 29. Recent numbers from 1998 show Sydney with a total of 21 million passengers (DOTRS 2001), which would place it considerably below the thirtieth position in the comparison of world airports. Even so, significant increases in air travel are predicted for Sydney, pushing transport capacities of the existing airport to its capacity limits and necessitating possibly the construction of a second major airport (DOTRS 2001)

These ambiguous results support what Beaverstock et al. (1999:2) in their overview of earlier world city research conclude: while unanimous support can be found for characterizing New York, London, Tokyo and Paris as leading world cities, there is 'much confusion below the very highest rankings of world cities'. There is no agreement about a method how to

measure world city status or define a global hierarchy of cities, and consequently comparisons between single cities are difficult to put into practice.

5.2 Descriptive and multivariate empirical classifications of world cities

One way to overcome this problem is offered in recent research of or published by the GaWC group from the University of Loughborough, UK. Results of this work will be presented subsequently with particular reference to the categorizations of Hong Kong, Singapore and Sydney and other cities of the Asian Pacific region or of all cities of the Pacific Rim. The research of the GaWC group has been refined methodologically step by step, and this overview will follow that stepwise elaboration, starting out with the first descriptive analysis of world cities to the recent multivariate statistical analysis, and mention a significant extension with regard to the (usually neglected) culture industries as well as some criticisms of these kinds of approaches.

The GaWC inventory of world cities

Building on the earlier theoretical work on world cities, which emphasizes the importance of producer and financial services Beaverstock et al. (1999) have developed a comprehensive and systematic inventory considering a total of 122 cities across the world. This inventory can be used for assessing a city's hierarchical status on the global level and is based on an extensive data set for four main sectors of global service industries: accountancy, advertising, legal, and banking services.

Table 5-2: Inventory of world cities

World city type	Score	Cities *
Alpha		
	12	London, Paris, New York, **Tokyo**
	10	Chicago, Frankfurt**, Hong Kong**, Los Angeles, Milan, **Singapore**
Beta		
	9	San Francisco, **Sydney**, Toronto, Zurich
	8	Brussels, Madrid, Mexico City, Sao Paulo
	7	Moscow, **Seoul**
Gamma		
	6	Amsterdam, Boston, Caracas, Dallas, Düsseldorf, Geneva, **Jakarta**, Johannesburg, **Melbourne**, **Osaka**, Prague, Santiago, **Taipei**, Washington
	5	**Bangkok**, **Beijing**, Montreal, Rome, Stockholm, Warsaw
	4	Atlanta, Barcelona, Berlin, Buenos Aires, Budapest, Copenhagen, Hamburg, Istanbul, **Kuala Lumpur**, **Manila**, Miami, Munich, **Shanghai**

Source: Beaverstock et al. (1999)   *) Cities of the Asian Pacific region marked in boldface in this table.

The authors construct scores (from 1 to 3) for the comparative position (prime, major, minor) of cities in each of these industries based on the number of 'significant presences' of large producer service firms. As a result, a simple combined score for each city is produced, that can range from 1 and 12, where 12 results when a city has a major position (score 3) in all 4 sectors of producer services. A total of 55 cities remain rated as world cities, classified into 10 Alpha, 10 Beta and 35 Gamma world cities (Tab. 5-2).

Sydney is ranked here as a Beta level world city, just one score point below Hong Kong and Singapore, which are both qualified as Alpha world cities. In the Asian Pacific world Seoul is the next closest weaker competitor to Sydney. Melbourne is a Gamma world city, sharing its score with Jakarta, Osaka and Taipei. Slightly lower scored are five other cities of the region.

World city network formation and connectivity

While the previous exercise is seen as a starting point aimed mainly at overcoming the severe data deficit in substantiating the structure of urban hierarchies, the following steps aim at an analysis of inter-city relations (Taylor/Catalano 2001). Producer service firms are perceived as the decisive agents, determining through their locational structure, the role of a city in the global urban system. Moreover, it is the intra-firm connections of these producer service firms that create network relations between world cities by flows of personnel as well as information, knowledge and ideas.

Data have been analyzed, in which 'global service firms' were defined as those having offices in at least 15 cities and having at least one office in the three main zones of the global economy: North America, Europe and Pacific Asia. This demarcation leads to a data set for 18 firms in accounting, 15 in advertising, 23 in banking and finance, 16 in law, and 17 firms in management consulting. These 100 firms have offices in 316 cities and for each office information was gathered, allowing the importance of that office (and accordingly the city) to a firms network to be judged. Importance is measured by a score termed *'service value'* ranging from 0, indicating no presence of a firm to 5, indicating in general the headquarter location of a firm. On the basis of these service values, a summary measure[16], *global network connectivity,* can be calculated for each single city, showing how strong this city is 'interlocked' into the network. Cities housing offices of many firms will have high degrees of connectivity, in particular when the status of these offices is ranked with high service values. In the statistical calculations conducted with this data set, the analysis has usually been limited to those cities

out of the 316 that reach at least one fifth of London's connectivity, since the data base for the less important cities is often too weak. A total of 123 cities remains for closer inspection.

Not surprisingly then, London and New York head the global ranking in Tab. 5-3, where connectivity of a city is given as a fraction of the highest value, the one of London. Rather unexpectedly however, a second strata of cities comprising Hong Kong, Paris, and Tokyo record far lower connectivity values, which at the same time show only minor differences. And the next city, Singapore, is again rated clearly lower than these three secondary cities. North American and European cities follow with some distance on rank 7 to 12, all performing rather similar on the connectivity index. Sydney takes rank 13, still ahead of European cities like Frankfurt or Brussels, and, besides Taipei with a rather distant rank of 20, is the only 'secondary' city of the Asia Pacific region in the top twenty world cities according to this ranking procedure.

Table 5-3: Global network connectivity of the top 20 world cities

World city	Rank	Score
London	1	1.000
New York	2	0.976
Hong Kong	3	0.707
Paris	4	0.699
Tokyo	5	0.691
Singapore	6	0.645
Chicago	7	0.616
Milan	8	0.604
Los Angeles	9	0.600
Toronto	10	0.595
Madrid	11	0.594
Amsterdam	12	0.590
Sydney	13	0.578
Frankfurt	14	0.567
Brussels	15	0.557
Sao Paulo	16	0.541
San Francisco	17	0.508
Mexico City	18	0.486
Zurich	19	0.485
Taipei	20	0.477

Source: Taylor/Catalano2001

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[16] It is 'computed as the aggregate, for all 100 firms, of the sum of the products of a city's service value for a given firm with the service value of each other city for that firm (Taylor/Catalano 2001:2).

Pacific Rim world cities – strengths and weaknesses

A closer inspection of all world cities along the Pacific Rim is possible with a data set[17] provided by the GaWC group, allowing strengths and weaknesses of single cities in specific service sectors to be assessed. Based on the same method as the previous ranking, the subsequent figures represent data for 46 global service firms of accounting, advertising, banking/finance and law in 28 Pacific Rim cities (Tab. 5-4).

Table 5-4: Service values for Pacific Rim cities

	Accounting	Advertising	Banking/Finance	Law	Total
Hong Kong	11	11	29	17	68
Tokyo	14	9	29	14	66
Los Angeles	11	14	16	24	65
Singapore	8	14	29	10	61
Sydney	13	16	21	6	56
San Francisco	12	9	15	18	54
Taipei	8	9	19	5	41
Bangkok	7	10	14	8	39
Jakarta	9	9	16	4	38
Melbourne	10	12	12	3	37
Seoul	10	9	18	0	37
Santiago	9	9	12	3	33
Beijing	6	9	10	7	32
Kuala Lumpur	8	8	16	0	32
Manila	6	9	13	3	31
Shanghai	6	7	13	1	27
Auckland	8	13	1	0	22
Ho Chi Minh	5	7	5	5	22
Lima	5	6	9	0	20
Hanoi	4	3	4	5	16
Osaka	10	0	6	0	16
Vancouver	9	4	3	0	16
Brisbane	8	6	1	0	15
Seattle	5	2	3	4	14
Guangzhou	4	5	4	0	13
Wellington	7	5	0	0	12
Adelaide	7	3	1	0	11
Tijuana	6	0	0	2	8

Source: GaWC Research Group and Network, Dataset 8.2, own calculations.

Measured by the sum of all four service values, Hong Kong, Singapore, and Sydney all range in the upper tier of the 28 cities with Hong Kong leading, Singapore rated 7 points lower, and Sydney rated 5 points lower again. San Francisco then represents the lowest rated city of the upper tier. The second tier ranging from Taipei to Shanghai comprises, with the exception of Santiago and Melbourne, only East Asian cities, pointing at the strength of those cities in the provision of global producer services.

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[17] Acknowledgement: The data used is from Data Set 8 from the GaWC Research Group and Network (http://www.lboro.ac.uk/gawc/). It was created by P.J. Taylor, D.R.F. Walker and M. Hoyler as part of the project "The Regional Dimension in World City Network Formation" and is based on primary data collected by J.V. Beaverstock, R.G. Smith and P. J. Taylor (ESRC project "The Geographical Scope of London as a World City" (R000222050)).

If the values for single sectors of producer services are examined, however, quite different rankings of the leading cities in Asia Pacific come into sight.

- In *accounting* Tokyo leads, closely followed by Sydney, Hong Kong is along with Los Angeles fourth, and Melbourne, Seoul and Osaka even rank higher than Singapore. The distribution of service values over all cities included is rather smooth with no extremely high or low values. This is related to the fact that accounting firms prefer direct presence in local markets and locate rather evenly in attractive regions.

- In *advertising* Sydney shows the strongest network connections of all 28 cities. Singapore is on the next level, Melbourne (and Auckland) still outperform Hong Kong. The strongly connected advertising sector of Sydney and also of Melbourne is an indication of the competitiveness and strength of the Australian cultural industries. This interpretation will be supported by other results below.

- *Banking and finance* firms' values obviously contribute most to the total for all four sectors. In this sector Hong Kong, Tokyo and Singapore represent the three strongest nodes with exactly equal service values. Sydney ranges on the second level, quite closely followed by Taipei and some other cities of the region like Kuala Lumpur or Jakarta that are rated not much lower. Leaving the three foremost cities aside, the offices of banking and finance firms are rather equally distributed along the Pacific Rim.

- The service values for *law* firms have a very distinct distribution, highlighting the dominance of American cities, with Los Angeles leading and San Francisco being third after Hong Kong. Singapore ranges much lower, and Sydney is ranked within the low values of most of the cities of the Pacific Rim. In the networking of law firms, thus American cities play the decisive roles, among the cities included only Hong Kong and Tokyo can compete.

These strongly diverging sectoral rankings demonstrate that globalization is a highly unequal process, which can not be imagined as a diffusion of similar economic structures across different regions of the world or through the global urban system. Different sectors of producer services produce rather different patterns of specialization across world regions and world cities. Taylor and Walker (2000), applying multivariate statistical analysis to the data set for the global service firms, found that it is not possible to identify a single indicator or dimension as a measure of globalization or hierarchy. Rather, different producer service industries produce different locational structures between world cities.

This in turn means that the economic structures of world cities, especially of the leading ones, can, beyond the significance of global producer service firms, hardly be expected to

be close to equal. This claim will become clearer in the next section, describing similarities of world cities and patterns of the global urban system.

Clusters of world cities: the five groups solution

For researching the patterns of the world city network, Taylor, Catalano and Walker (2001) examined the previously described data set for 100 global service firms and 123 cities, thus a 123x100 data matrix, with a principal components analysis, which is a special form of factor analysis. Factor analysis is a statistical technique permitting a number of *independent* factors or *components* to be extracted from a data matrix that explain the variation in the data matrix. Cities then have a certain 'loading' on single components, where the loading stands for the correlation between a city (resp. its service mix as calculated from service values) and a component. The higher the loading, the better a city is represented in a component or cluster of cities. Loadings can vary between 1 and 0 and a city was only fused into a cluster when its loadings on a component was higher than 0.4.

In the given case a matrix of correlations between cities, computed from the service values for the global service firms offices located in a city, is the point of departure. Taylor, Catalano and Walker compare different solutions to the component extraction problem, a two component solution, a five component solution and one with ten components and they consider the five component solution as the most readily interpretable, representing best 'the primary structure of the data' (p.5), although a number of world cities, and in particular the undisputed leaders of the global hierarchy, London (LN) and New York (NY), are *not* fused into any of these five clusters.

Components here correspond to clusters of cities with *similar mixes of global producer service firms* and, although no geographical variables are taken into consideration, a pattern with a strong geographical dimension becomes evident. But that pattern is simultaneously deeply influenced by socio-economic and historical elements. The five groups of cities identified in that pattern are (Fig. 5-1):

- A large group of *outer cities* (on the fringe of the figure) comprising minor and medium world cities outside the very central arenas of globalization. These include e.g. Madrid (MD) and Oslo (OS) on the European fringe, Montevideo (MV) or Lima (LM) in Latin America, or Calcutta (CC) and Bangalore (BN) in India.
- The *United States cities* **(US)** are represented in a separate large group of medium to minor world cities where Los Angeles (LA) or Chicago (CH) stand for the first type, and

Pittsburgh (PB) or Houston (Hs) for the latter. The only rather remarkable exception in this group is Melbourne (ME) obviously showing a certain similarity to US cities.

Figure 5-1: Clusters of similar world cities
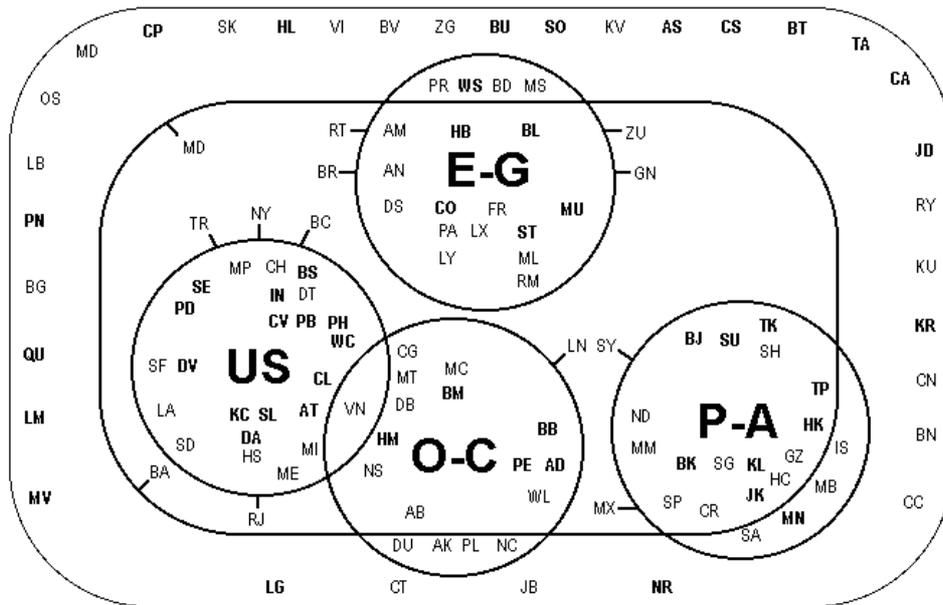
Source: Taylor, Catalano, Walker (2001)

List of world cities and their abbreviations:

AB Abu Dubai; AD Adelaide; AK Auckland; AM Amsterdam; AS Athens; AT Atlanta; AN Antwerp; BA Buenos Aires; BB Brisbane; BC Barcelona; BD Budapest; BG Bogota; BJ Beijing; BK Bangkok; BL Berlin; BM Birmingham; BN Bangalore; BR Brussels; BS Boston; BT Beirut; BU Bucharest; BV Bratislava; CA Cairo; CC Calcutta; CG Calgary; CH Chicago; CL Charlotte; CN Chennai; CO Cologne; CP Copenhagen; CR Caracas; CS Casablanca; CT Cape Town; CV Cleveland; DA Dallas; DB Dublin; DS Düsseldorf; DT Detroit; DU Dubai; DV Denver; FR Frankfurt; GN Geneva; GZ Guangzhou; HB Hamburg; HC Ho Chi Minh City; HK Hong Kong; HL Helsinki; HM Hamilton(Bermuda); HS Houston; IN Indianapolis; IS Istanbul; JB Johannesburg; JD Jeddah; JK Jakarta; KC Kansas City; KL Kuala Lumpur; KR Karachi; KU Kuwait; KV Kiev; LA Los Angeles; LB Lisbon; LG Lagos; LM Lima; LN London; LX Luxembourg; LY Lyons; MB Mumbai; MC Manchester; MD Madrid; ME Melbourne; MI Miami; ML Milan; MM Manama; MN Manila; MP Minneapolis; MS Moscow; MT Montreal; MU Munich; MV Montevideo; MX Mexico City; NC Nicosia; ND New Delhi; NR Nairobi; NS Nassau; NY New York; OS Oslo; PA Paris; PB Pittsburgh; PD Portland; PE Perth; PH Philadelphia; PN Panama City; PR Prague; QU Quito; RJ Rio de Janeiro; RM Rome; RT Rotterdam; RY Riyadh; SA Santiago; SD San Diego; SE Seattle; SF San Francisco; SG Singapore; SH Shanghai; SK Stockholm; SL St Louis; SO Sofia; SP Sao Paulo; ST Stuttgart; SU Seoul; SY Sydney; TA Tel Aviv; TP Taipei; TR Toronto; VI Vienna; VN Vancouver; WC Washington DC; WL Wellington; WS Warsaw; ZG Zagreb; ZU Zurich

- *Euro-German cities* **(E-G)** including mostly cities in or close to the economic core of Europe, such as Paris (PA), Frankfurt (FR) or Hamburg (HB) and even Prague (PR) and Moscow (MS), though the latter two cities belong simultaneously to the outer cities group.

- A group of cities labeled *Old Commonwealth cities* **(O-C)** consisting of British cities and cities distributed across the globe with a strong historical link to Britain. These include many Australian cities like Brisbane (BR) or Adelaide (AD), but also Auckland (AK) and Wellington (WL), Dubai (DU) and Hamilton (HM).

- Finally there is distinct group of *Pacific-Asian cities* **(P-A)** drawing together mainly the world cities from East and Southeast Asia, with some from India and Latin America. Tokyo, Hong Kong and Singapore belong to this group and all other cities of the booming Asian regions, Beijing (BJ) and Guangzhou (GZ) , Kuala Lumpur (KL) and Jakarta (JK).

Outside these five groups and within the large inner ring are *cities that are not allocated*, which means they have neither service mixes similar to the cities of these five groups nor a strong similarity within themselves. As mentioned above, this applies to London and New York, but also to Rotterdam (RT), Rio de Janeiro (RJ), Zurich (ZU) and Geneva (GN) and also to Sydney (SY). In Fig. 5-1 these cities are situated near the group to which they have the highest loading, that is, to which they show the strongest (small) similarity. To complicate the picture, a number of cities have high loadings on more than one component, in this case the cities are shown in overlapping groups, for instance Santiago (SA) being allocated to the Outer cities and the Pacific-Asian group.

The authors themselves state that their work is an 'exploration' into the structure of the data (p. 7) and conclude: 'We did not produce neat findings. There are overlaps between clusters of cities, some cities are not allocated, and the content of clusters alters through different analyses. There is definitely no simple hierarchy of world cities'. It is, therefore, not possible to define some form of standard economic structure for a world city on a global level, the leading world cities are highly unique. There are nonetheless strong patterns of similarity between lower rank world cities depending mainly on geographical but also on socio-economic and historical dimensions. For the three cities of Asia Pacific being of interest here the following can be said. Hong Kong and Singapore are fused quite clearly into the Pacific-Asian group, Sydney, however, is not. Still, it is most similar to this Pacific-Asian group of cities in its functions, not to the Old Commonwealth cities, as are other cities in Australia or New Zealand. This can be seen as an indication that Sydney has dissolved its historical ties in part and is in a process of taking over new functions in the Asian Pacific hemisphere.

The inventory global media cities

The research on world cities summarized above had a clear sectoral or functional focus: producer services, in particular financial and banking activities, and high level corporate func-

tions of manufacturing corporations are seen as the driving forces of world city formation. Largely neglected in these accounts, especially in the otherwise profound empirical investigations are the culture industries that are without doubt of increasing significance for urban change and development (e.g. Lash/Urry 1994, Scott 1997, Scott 2000). This shortcoming is dealt with in a recent contribution by Krätke (2002) who takes up the methodology of the early GaWC work and constructs an inventory of world media cities, applying a similar empirical approach and presenting results in a similar manner as Beaverstock et al. (1999). Krätke analyzes data for 33 'global media firms' spanning a network across the globe with in total 2,766 business units. Cities are again divided into three categories, Alpha, Beta, and Gamma world media cities, depending simultaneously on two characteristics of a city: (1) the number of business units in a city and (2) the number of global players present in that city. As a threshold value for Alpha cities then the amount of at least 60 business units and at least 17 global players is selected. For Beta cities the respective values are 30 and 11, and for Gamma World media cities 20 and 8.

One main result of that investigation is that the establishments of global media firms are highly unequally distributed among the cities considered. The seven cities of the Alpha group, which represent only 2.5% of all 284 cities, account for 30% of all establishments. The other main finding is that the pattern of Alpha, Beta and Gamma media cities coincides in part almost exactly with the pattern of the former GaWC inventory based on producer service firms, but that there are also striking deviations.

Table 5-5: World media cities*

Type of World Media City	Cities* (Number of enterprise units – Number of global players)
Alpha	New York (185-22), London (180-29), Paris (129-26), Los Angeles (111-25), Munich (96-20), Berlin (70-19), Amsterdam (64-18)
Beta	Copenhagen (56-18), Madrid (54-19), Hamburg (52-14), Stockholm (48-19), Milan (49-19), Oslo (47-16), **Sydney (44-16)** Athens (39-19), Toronto (38-15), Barcelona (37-15), Frankfurt (37-14), Brussels (37-13), Zürich (36-16), Warsaw (31-16), Budapest (31-15),
Gamma	Chicago (40-10), San Francisco (35-19), Düsseldorf (33-9), Boston (31-9), **Singapore (30-16),** Vienna (30-14), **Tokyo (29-18), Hong Kong (29-16),** Cologne (28-149, Prague (27-12), Lissabon (25-12), **Melbourne (23-9)**, Buenos Aires (22-14), Mexico City (22-12), Helsinki (22-11), Rome (21-12), Sao Paulo (21-11)

Source: Krätke (2002)   *) Asian Pacific cities marked in boldface in this table.

The pattern at the very top of the hierarchy of world media cities (Tab. 5-5) matches that of the hierarchy described by the GaWC inventory. New York and London appear as out-

standing nodes of the global media firms included, and Paris is third, similar to its ranking in many other categorizations.

After the third position, however, other cities than the usual 'leaders' follow. Los Angeles is thus fourth, which might seem as an exceptional case because of the global dominance of the Hollywood media complex. But then a long list of cities follows, covering the remaining Alpha and all Beta world media cities and these cities are almost all European. There only two exceptions to that list, Toronto and Sydney. Sydney is the clearly highest ranked city of the Asia Pacific region, followed by Singapore.

Tokyo and Hong Kong, dominating as locations for producer services and financial activities in the region, play minor roles when it comes to global media firms, both are rated as cities of the Gamma level. (So is Melbourne, the second Australian metropolis, which points yet again at a rather strong competitive position of the Australian media sector.) It should be borne in mind that this does not preclude that lower ranked cities play important roles as centers for national or other less globalized culture industries, since only truly global firms were included in the investigation. Taking that global perspective, however, it is apparent that below the highest ranked American cities, New York and Los Angeles, there is large array of European cities housing high concentrations of global media firms networks. Given the usually presumed strong position of the USA in many sectors of 'content' and 'software' and of Japan in 'hardware' for the culture industries, the strong significance of European cities and Sydney comes rather surprising. In fact, the Sony Corporation for example, as one of the key global players in the culture industry, is now a highly decentralized (and successful) organization scattering important functions like R&D, management or creative activities across many locations in the world (Arimura 1999). Europe's cultural diversity can apparently be seen as a strength in the global arena of the culture industries, and Sydney is very well linked into these networks playing an important role in the production and distribution in the markets of Asian Pacific countries.

Hierarchies, networks, black holes and loose connections

Most of the research summarized so far is based on a sound empirical base, often supported by very sophisticated statistical analysis and represents a productive utilization and extension of earlier theorizing on world cities or global urban systems. Nevertheless, both the conceptual basis of much of that work and also the empirical coverage of the global urban system are far from being complete. There has been a shift in the debate about global cities from the hierarchy paradigm, introduced by authors like John Friedmann, to the network perspective

prevailing in the work of the GaWC group. Both these conceptualizations are unsatisfying since they in part project theoretical constructs developed from organization theory for the level of individual *corporations* to the level of *cities*, which are political and social organizations with much higher complexities. Smith (2002) criticizes these theories, and advances the idea of 'world city actor networks' that acknowledges that networks are constantly being made by human and non-human actors.

Short (2002) points out two other deficiencies in current world city research. First, with the exclusive attentiveness to the locational structure of global service firms, the huge urban agglomerations, mostly in the 'underdeveloped' world, are left out of sight. He presents a list of almost 35 such cities having populations between 3 and 11 million inhabitants, which are not world cities in the definition of the GaWC group but are home to enormous populations. Some of the largest of these cities are Teheran (with 10.7 million inhabitants), Dhaka (9.9) or Khartoum (7.3). Of these cities, 11 belong to national territories in which no single other city is rated as a world city in the GaWC inventory. These cities represent the 'black holes' in the global system of cities when described only through locational structures of global service firms. Examples for such cities are Kinshasa/Congo, Lahore/Pakistan or Chittagong/Bangladesh. Still, it has to be remembered that 'global cities have marginalized populations while black holes also have transnational elites' (p.4).

Second, 'connectivity' of cities as defined in the work of the GaWC group, based upon producer service firms locations, is contrasted with population data for these cities in a regression analysis.

Figure 5-2: Regression Analysis

Population and Connectivity

$y = 0.0001x + 0.2903$
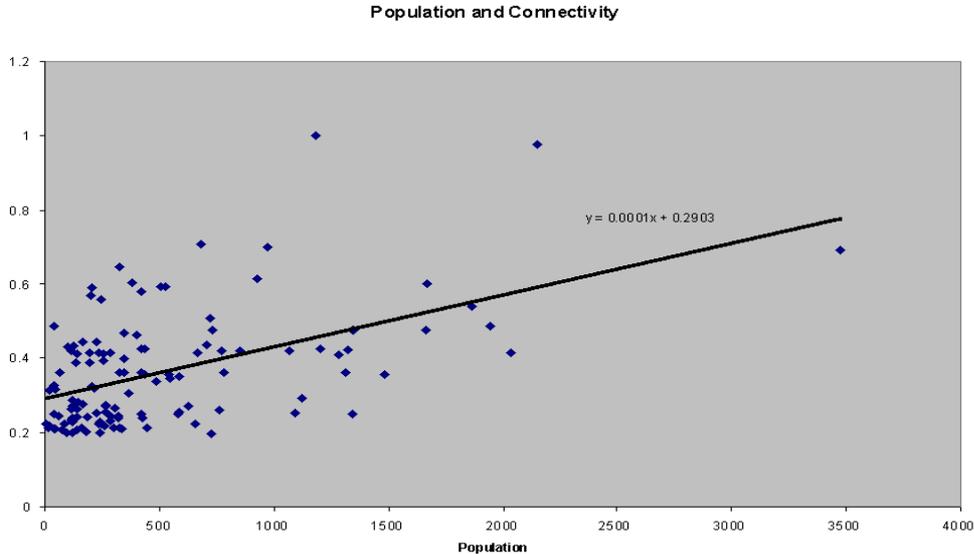
The goal of this analysis is to find out how population and connectivity correlate, and how residuals, the unexplained variation, are distributed. In a first step then, an equation is computed that best describes the distribution of population and connectivity data (Fig. 5.2).

Figure 5-3: Residuals
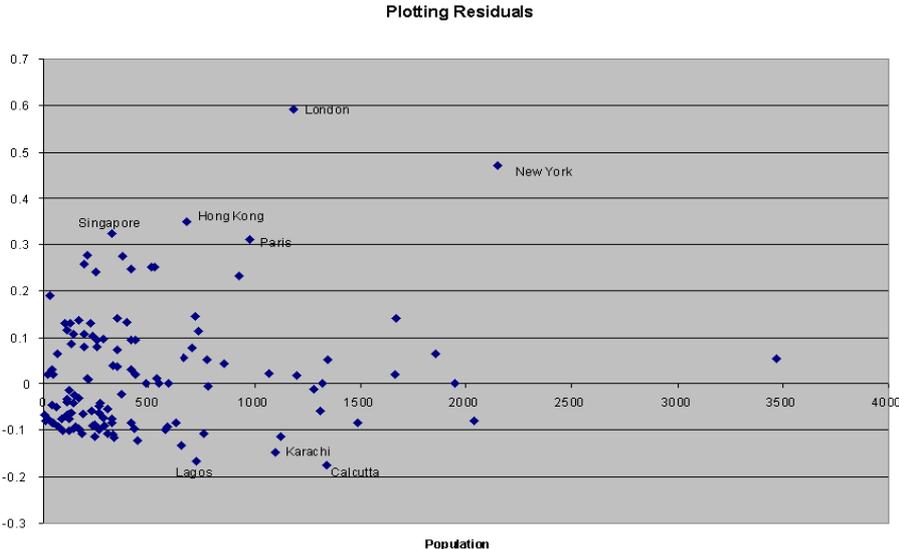
Next the 'real' connectivity values for cities are contrasted with those that would be 'estimated' from the equation. The residuals (Fig. 5-3) derived from that exercise show that some of the cities are much more strongly connected than would be predicted from their population size, while others are much less connected than would be predicted from the equation.

Again London and New York 'lead' in this sort of ranking, they are the strongest 'overproportionally' connected in relation to their population (Tab. 5-6a). And Hong Kong and Singapore, being on position three and four of the list, emerge as overly important cities in Asia Pacific.

<table>
<tr><td colspan="2" align="center">**Table 5-6a:**
The ten 'best connected' cities</td><td colspan="2" align="center">**Table 5-6b:**
The ten 'worst connected' cities</td></tr>
<tr><td align="center">**City**</td><td align="center">**Residual**</td><td align="center">**City**</td><td align="center">**Residual**</td></tr>
<tr><td>London</td><td align="center">0.591</td><td>Calcutta</td><td align="center">-0.175</td></tr>
<tr><td>New York</td><td align="center">0.470</td><td>Lagos</td><td align="center">-0.165</td></tr>
<tr><td>Hong Kong</td><td align="center">0.348</td><td>Karachi</td><td align="center">-0.147</td></tr>
<tr><td>Singapore</td><td align="center">0.322</td><td>Chennai</td><td align="center">-0.131</td></tr>
<tr><td>Paris</td><td align="center">0.310*</td><td>Guangzhou</td><td align="center">-0.121</td></tr>
<tr><td>Amsterdam</td><td align="center">0.278</td><td>Kiev</td><td align="center">-0.115</td></tr>
<tr><td>Milan</td><td align="center">0.275</td><td>Rio de Janeiro</td><td align="center">-0.113</td></tr>
<tr><td>Frankfurt</td><td align="center">0.257</td><td>Pittsburgh</td><td align="center">-0.113</td></tr>
<tr><td>Madrid</td><td align="center">0.253</td><td>Casablanca</td><td align="center">-0.110</td></tr>
<tr><td>Toronto</td><td align="center">0.251</td><td>Lima</td><td align="center">-0.108</td></tr>
</table>

*) Value for Paris estimated from scatterplot.   Source: Short (2002)

These two cities are followed by number of middle-sized mainly European cities like Milan or Frankfurt that equally have attracted more functions in the service firms' networks than would be predicted from their size.

At the other end of the ranking (Tab. 5-6b) we find huge cities of the third world, beginning at the 'lowest' end with Calcutta, Lagos and Karachi, that are much less connected than might be expected from their enormous population. Guangzhou, Hong Kong's 'manufacturing outlet', is at position five of that list, which indicates the extreme polarization between these two cities. The one overly connected into the global circuits of financial and producer service activities, representing one of the 'command points' in the global city system, the other extremely disconnected, representing the counterpart of the command points with a sheer endlessly growing influx of workers and other people, a prevalence of standardized manufacturing activities, and often worst labor and living conditions. That polarization between cities is not only a phenomenon of industrializing third world countries becomes apparent when the cities following Guangzhou are looked at. These are Kiev, Rio de Janeiro and then already Pittsburgh (USA) is next on the list of disconnected cities.

6. Sydney's socio-spatial structure and development

With the globalization and economic restructuring described above, social transformation such as increased female labor participation, changing household structures (increasing shares of singles and partnerships without children), and the aging of the population took place. A dismantling of fordist employment and wage regulations started and social inequality increased. Unemployment rose and, in particular among the youth, it has remained on high levels. All large metropolitan areas of Australia were hit by these changes, though to different degrees and in spatially highly differentiated ways. Therefore, an overview of the resulting specifics of urban change in Sydney will be given in the following.

Classifying communities in Australian metropolitan areas

Much work analyzing these changes for particular problems or places has been done. The most ambitious recent work on socioeconomic change in Australia's cities and towns is a study done by a group of researchers: Scott Baum, Roberts Stimson, Kevin O'Connor, Patrick Mullins, Rex Davis. They analyze a large set of essential variables describing single communities 'opportunity' and 'vulnerability' with a sophisticated theoretical and empirical approach, allowing development perspectives of single communities *within* and *among* cities to be compared. Results of this work (Baum et al. 1999) concerning Sydney will be presented and illustrated subsequently, with some reference to other metropolitan regions.

The core *statistical procedure* of their work was to classify observations (in this case communities) according to a set of socioeconomic variables into a number of *clusters*, consisting of communities with high similarity. Between single clusters, however, a high degree of dissimilarity should exist. To solve this problem a hierarchical clustering technique was applied combined with a multiple discriminant analysis. Hierarchical clustering starts with all single communities, choosing on the basis of an similarity index for all variables, the two most similar ones and then adds stepwise the next similar community until all are joined in one group. The process can be graphically shown as a tree-like structure (dendrogram). The final *number* of clusters is then determined on pragmatic grounds and statistical measures, but no single best solution usually exists. In an additional stepwise discriminant analysis, those variables were chosen that discriminate strongest between clusters for the cluster solution selected before. This allows discriminant scores to be calculated for each community, which can be used to determine centroids (mean values) of clusters and a summary discriminant

score. These score measures the position of single communities or for clusters of communities on a continuum of 'opportunity' and 'vulnerability'.

The *variables* applied for the clustering procedure were selected after experimenting with a wider array of variables. Finally 12 variables were opted for and the data cover the period from 1986 to 1996:

- Change in employment
- Change in unemployment
- Change in high income households
- Occupation structure score
- Industry structure score
- % low income households
- % high income households
- % Population with a degree
- % Population with minimum education
- Unemployment rate
- Youth unemployment rate
- Labor force participation.

The analysis was undertaken for three types of settlements: small regional towns, large regional cities and towns, and large metropolitan city regions. Only the results for the *large metropolitan city regions*, especially *Sydney* are of interest here. As smallest spatial unit, reasonably disaggregated, statistical local areas (SLAs) were chosen, which in general equate to local government areas (LGAs) that in turn can be viewed as local communities. For the largest four cities (Sydney, Melbourne, Brisbane, Adelaide) all SLAs were included that make up their respective mega metro regions, for Canberra and Hobart SLAs were included that form their proper statistical divisions. A total of 240 SLAs results for the Australian metropolitan areas.

These 240 SLAs were *classified into 9 different clusters*. The clusters can be named according to their socioeconomic and/or spatial specificities, and ordered according to their mean discriminant scores. They build a continuum from highest opportunity to strongest vulnerability (Tab. 6-1). The average values for all variables included and the 9 clusters are given in Tab. 6-2. In addition, the cluster averages are illustrated graphically for a few selected variables (Fig. 6-1a to 6-1c).

Table 6-1: Clusters of metropolitan regions (Numbers, mean discriminant scores, labels)

| Opportunity clusters				Marginal cluster	Vulnerability clusters			
6	2	3	1	5	7	4	9	8
193.73	90.81	45.62	41.87	-11.82	-40.89	-114.72	-164.24	-187.53
Global economy/ high income cluster	Suburban expansion cluster	Transitional/gentrifying cluster	Public sector moderate opportunity. Cluster	Suburban marginal cluster	Outer metro vulnerable growth cluster	Suburban social disadvantage cluster	Peri-urban extractive industry based cluster	Extremely vulnerable old manufacturing cluster

Souce: Baum et al. (1999)

Table 6-2: Cluster characteristics

| Variables	Opportunity clusters				Marginal Cluster	Vulnerability clusters				Total Metro avg.
	6	2	3	1	5	7	4	9	8	
Structural economic change										
% Change in employment	13.7	90.5	11.1	-0.8	26.4	88.9	9.0	30.4	-4.7	22.9
Point change in unemployment	-0.6	-0.1	-1.5	1.8	0.8	-2.9	0.6	-1.5	4.4	0.2
Point change in high income households	12.9	13.5	11.2	6.6	9.9	9.0	6.6	7.4	5.5	9.4
Population Change										
Residential turnover	40.4	43.3	46.2	36.0	37.3	49.5	37.7	41.6	35.9	40.3
Occupational characteristics										
% Symbolic analysts	43.3	22.2	38.7	38.4	23.0	18.3	20.3	33.3	20.8	29.3
% In-person service workers	37.5	44.5	38.7	38.2	43.2	42.5	43.6	33.0	42.7	40.8
% Routine production workers	19.0	32.6	22.6	22.5	33.4	37.9	35.9	33.5	36.2	29.5
Industry employment characteristics										
% Extractive	1.2	6.3	1.4	1.7	3.0	3.4	3.8	27.8	2.1	3.9
% Transformative	13.7	22.5	13.7	15.1	23.5	22.9	23.5	16.2	26.1	19.5
% Distributive	27.6	29.9	28.0	26.6	21.1	29.7	30.1	22.8	30.3	28.9
% Producer services	24.7	12.1	19.6	17.0	12.8	11.3	11.3	6.4	11.4	15.1
% Social services	23.2	19.6	26.0	29.5	19.9	18.2	21.2	17.9	20.3	22.2
Human capital										
% Persons with a degree	28.7	8.7	23.5	22.1	9.5	5.4	7.2	5.6	9.2	14.6
% Persons with basic education	12.3	25.3	11.8	11.5	20.3	27.5	22.7	28.0	15.9	18.2
Income										
% High income households	40.7	31.6	26.2	31.7	26.0	16.1	18.9	14.2	15.6	25.9
% Low income households	12.8	11.4	21.5	15.9	15.9	22.0	22.7	23.7	25.7	18.6
Unemploym./labor force participation										
% Youth unemployed	10.1	13.8	18.4	14.8	15.2	25.0	21.1	18.1	24.6	17.2
% Unemployed	4.7	6.7	9.5	7.0	8.1	13.9	11.4	9.2	14.5	9.0
Female labor participation	55.7	58.9	52.6	54.3	53.5	45.0	47.2	47.4	42.4	51.6
Socioeconomic disadvantage										
%Single parent families	7.9	9.0	9.5	9.0	9.9	12.0	11.2	8.1	11.3	9.7
% Recent arrivals	4.7	2.0	6.0	3.5	2.7	2.0	2.4	0.7	3.8	3.4
% Aged 65 +	14.0	6.0	12.9	13.8	9.9	14.1	13.5	12.2	17.4	12.6
Housing (% of households)										
In public rental households	1.6	3.3	5.9	5.6	4.1	6.4	7.4	2.4	6.8	4.9
With rental hardship	13.7	16.6	25.0	19.8	21.3	25.3	29.6	26.3	28.8	22.7
With mortgage hardship	1.9	2.3	3.5	2.6	3.2	5.4	4.7	8.2	6.4	3.8

Source: Baum et al. (1999)

Figure 6-1: Mean cluster values of (selected) variables for Australian metropolitan areas

a)   Occupational characteristics
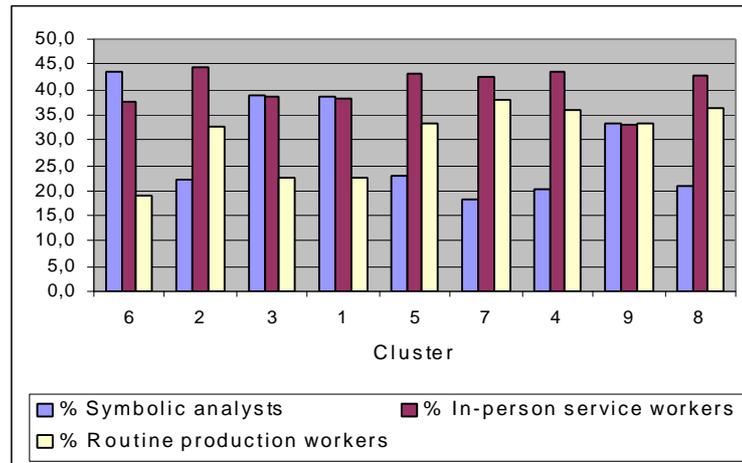
b)   Human capital
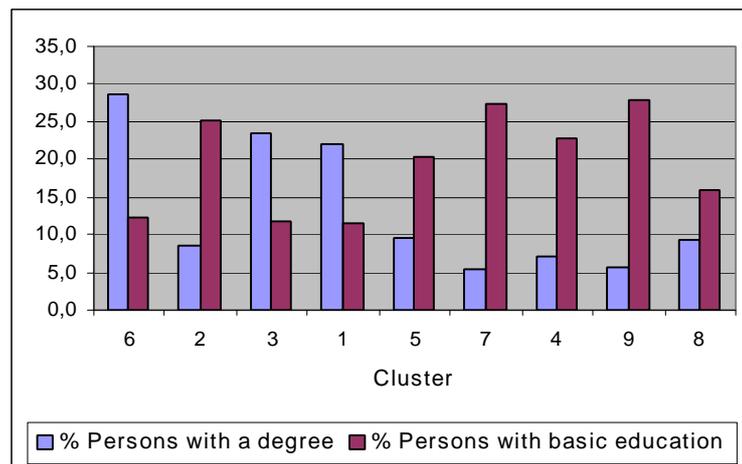
c)   Income
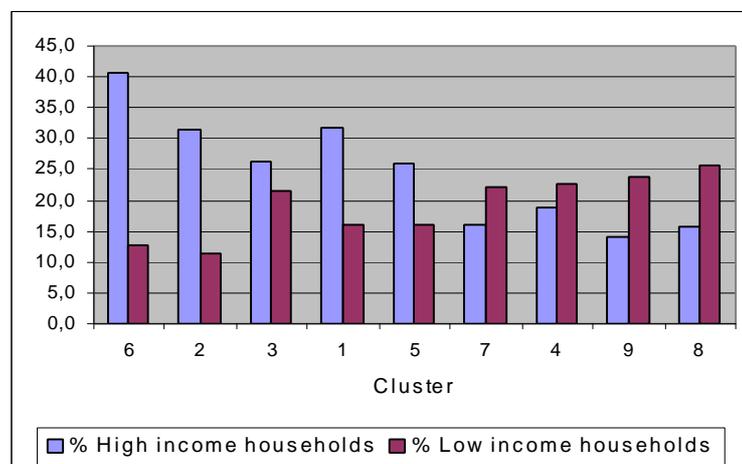
The results of this extensive analysis show that Australian cities are characterized by a very complex socioeconomic structure, that a simple one-dimensional indicator can hardly grasp. The clusters of *opportunity* (6,2,3,1) share a number of similar characteristics, they comprise SLAs where, in general, many winners of the structural changes live. For instance, most clusters have very high shares of symbolic analysts and persons with a degree. Their shares of high income households are significantly higher than those of the vulnerability clusters. On the extreme, in cluster 6 almost three time more high income households are to be found than in cluster 9. The unemployment rates in the opportunity clusters are, except for the transitional cluster (3), all much lower than in the vulnerability clusters.

The *vulnerability* clusters (7,4,9,8) contain the areas where the losers of restructuring can be found. All four clusters have very proportions of routine production workers, most also have very high shares of persons with only basic education. The shares of low income households are higher in all of them than in the opportunity clusters.

Sydney's socio-spatial structure and change

Sydney's socioeconomic and spatial structure can now be described on the basis of the above statistical analysis. All single clusters will be discussed separately. The classification of SLAs[18] into clusters and their location is shown for the inner Sydney region (Fig. 6-2) and for the outer Sydney region (Fig. 6-3).

Global economy/high-income cluster (6)

This is the cluster with the highest values in variables indicating opportunities and the lowest values for variables indicating vulnerability. It contains suburbs with high socioeconomic status. The labor force is strongly involved in the well paid, knowledge-based activities of producer service firms and upper level management activities of national and international firms.

In inner Sydney all SLAs north of the waterfront from Manly to Hunters Hill belong to this cluster. South of it is Canada Bay (Concord and Drummoyne), Leichhardt and Woolhahra. In the southern part of inner Sydney Kogarah and the bordering Sutherland SLA, belonging to outer Sydney, are also parts of cluster 6. Further the huge SLAs of the northern part of outer Sydney are grouped into this cluster. A number of regional headquarters are now located in these SLAs, as well as Sydney's largest business parks, Norwest (Searle 1996).

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[18] Outerlying SLAs included in the mega metro region are not shown in the maps. Cluster 2: Hawkesbury, Wollondilly. Cluster 3: Blue Mountains. Cluster 4: Cessnock, Greater Lithgow, Lake Macquire, Shellharbour, Wollongong, Newcastle, Cluster 7: Wyong. Cluster 5: Gosford, Kiama, Wingecarribee.

Figure 6-2: Classification of inner Sydney SLAs into clusters

(1cm=2km)

Source: Baum et al. (1999), own graphical illustration.

Suburban expansion cluster (2)

The SLAs of this cluster consist of the typical middle class suburb. There are more than average high income households, and less than average low income households. They had the strongest growth in employment and the highest female labor participation rates. Most of this employment consists of in-person services, where these SLAs show the highest ratio. Routine production workers also comprise a large share, and symbolic analysts, as a consequence, only a rather small one.

In Sydney this cluster consists of the Camden and Penrith SLA (Figure 6-3) and also Hawkesbury and Wollondilly (not mapped). Penrith is a typical such community, located on the outer western fringe of metropolitan Sydney, it offers a wide range job opportunities. Numerous manufacturing companies, business services firms and the relocated Australian Tax Office have created a large demand for workers in this area.

Figure 6-3: Classification of outer Sydney SLAs into clusters

(1cm=8.5km)

Source: Baum et al. (1999), own graphical illustration.

Transitional/gentrifying cluster (3)

This cluster mostly comprises inner city suburbs that have undergone gentrification in recent years. The share of persons possessing at least a university degree is rather high, the share of persons with only basic education very low. However, there is still quite a significant percentage of lower income households, lower than in any other opportunity cluster. This seems to contradict the relatively high share of symbolic analysts, but it is rather a sign of the rapid change that takes place in these communities, as is evidenced in the above average value for

residential turnover. These are the areas where the 'yuppies' and 'dinks' tend to live, close to inner city workplaces and cultural attractions.

In inner Sydney seven SLAs, from Burwood to Randwick, and also Sydney city fit into this category, they thus form a ring around the central business areas.

Public sector moderate growth cluster (1)

In Sydney only one SLA, Strathfield, is grouped into this cluster. The cluster is distinguished particularly by low values of indicators for change: employment roughly remained unchanged, the percentage of high income households grew only moderately and residential turnover was the lowest compared to the metro average. Household incomes are rather evenly distributed with an above average share of high income households and a below average share of low income households. These SLAs also record the highest percentage of workers in social services.

Suburban marginal cluster (5)

This cluster can be regarded as representing the 'average' cluster of the metropolitan areas. It shows both signs of opportunity and signs of vulnerability, often development perspectives are not clear. In general the SLAs have rather low unemployment rates and below average low income households. In the employment structure, however, transformative industries prevail and the occupational structure shows an above average percentage of routine production workers. Similarly, the human capital indicators point at an industrial structure with little modern industries and rather lower skill jobs. The locations of the included SLAs appear favorable for large scale industries.

SLAs classified into this cluster can be found in Sydney's inner areas stretching from Botany Bay to Hurstville. In the outer areas they surround the cluster 4 SLAs and also contain Liverpool.

Outer metropolitan vulnerable growth cluster (7)

Cluster 7 is the first in the vulnerability group. It shows rapid employment growth and declining unemployment, but in terms of industry profile and occupational structure its performance is rather mediocre. Much of the rapid growth areas on the Gold and Sunshine coasts belong to this cluster, where many jobs are low-skill, low-paid and part-time. In Sydney only one SLA, Wyong (not mapped) is part of this cluster.

Suburban social disadvantage cluster (4)

In Cluster 4 a lot of SLAs are associated with older fordist manufacturing industries. The high percentage of workers in transformative industries and the high share of routine production workers point at such industries. Employment growth is quite slow, unemployment rates are above average.

In the mega metro region of Sydney, the steel and coal centers that were subject to painful restructuring form this cluster, in particular Newcastle and Wollongong. In addition, the SLAs of Cessnock, Greater Lithgow, Lake Macquire, Shellharbour are included (all not mapped). In the inner Sydney area Canterbury, is also part of this cluster, as well as Auburn and Fairfield in the outer areas.

Extremely vulnerable old manufacturing cluster (8),

Vulnerable peri-urban extractive industry based cluster (9)

These are the clusters with the highest values for the variables of vulnerability. Neither cluster contains SLAs of the Sydney region.

Cluster 9 comprises mostly SLAs of the Perth metro region, some of Adelaide and one of Melbourne. They are located on the urban fringe and structured by substantial extractive (mainly agricultural) industries. Overall they show a relatively poor economic performance.

Cluster 8 has the strongest increase in unemployment and also the highest unemployment rate (14.5%). Unemployment among youth is, with almost 25%, extremely high. A fourth of the households receive low incomes, and the share of high income households is far below the metro average. In Melbourne 15 SLAs belong to this cluster.

To conclude, this classification of communities of Australian metropolitan areas produces a number of highly informative results, some were presented here. A total of 240 communities (SLAs) can be classified into 9 distinct clusters, representing a continuum from the highest opportunity to the severest vulnerability. In Sydney the best rated opportunity cluster comprises large parts on the inner areas and the whole northern part of outer Sydney. These communities are home to the winners of structural change. The southern part of the inner area is divided largely into two types of clusters, the transitional/gentrifying cluster and the suburban/marginal cluster. The first is still more strongly characterized by signs of positive social and economic development, while in the latter positive and negative tendencies are balanced. A number of SLAs of the Sydney mega metro region, however, belong to vulnerability clusters, though none is part of the two worst rated vulnerability clusters. In the Sydney region

these SLAs, still under strong pressure from social and economic restructuring, are located mostly in the outer fringe and comprise older industrial suburbs, but some of these communities can be found closer to inner city locations.

7. Summary and conclusions

This study presents an overview of contemporary metropolitan development in Australia, with special reference to Sydney, considering the globalization of economic activities, liberalization of financial markets, deregulation of labor markets and the increased use of information and communication technologies (ICT) in production technologies and consumption goods. These trends put individuals, firms, regions, and nation states under stronger and new forms of competitive pressure. Comparative advantages based on natural resources loose importance to competitive advantages, which are socially created. Since these are based on learning, knowledge and innovation, they are all dependent on highly developed institutional frameworks - private, public and intermediate. In spite of the globalization of economic activities, many places, cities or regions, remain agglomerations of extremely centralized and intense economic exchange, where spatial and socio-cultural proximity between economic agents is an essential ingredient for viability and competitiveness on world markets. Some examples of such high localization are 'industrial districts' formed for the most part by specialized small and medium firms, exporting design-intensive high quality goods, high technology regions or central business districts of metropolitan regions.

In Australia globalization, deregulation and liberalization reinforced structural changes in the composition of industries and occupations. With the large and populous 'neighboring' countries of Southeast Asia showing rather continuous population and economic growth, Australia felt the pressures of globalization particularly strongly, since both low labor cost and technological advances in these countries challenged the viability of Australian manufacturing industries.

The rise of first, Japan, to an economic superpower within a couple of decades, and then the rapid catching up of Asian 'tiger states' Hong Kong, Singapore, Taiwan, South Korea as industrialized countries, followed by another round of industrialization in ASEAN countries like Thailand or Malaysia, turned Pacific Asia into the world's fastest growing macro-region. In recent years China also has embarked on a rather stable path of economic development, giving the region yet another durable growth impulse. With this strong economic growth, which is combined in most countries with population growth, new phenomena of urbanization came into existence. The highly urbanized coastal regions of Pacific Asia are progressively more interlinked by economic and infrastructural ties, forming a gigantic *megaurban corridor*. A number of subsystems, smaller sized megaurban corridors, or growth trian-

gles, can be differentiated within this system of populous and dense agglomerations. Some of the mega cities of these corridors have developed into *megaurban regions,* where dense metropolitan centers are ever more interconnected to far outlying former rural areas. Some of those megaurban regions approach the twenty million inhabitants threshold like those of Jakarta or Manila. A number already exceed that level by far like Beijing or Hong Kong-Guangzhou, and the largest ones, Tokyo and Shanghai now accommodate close to 40 million inhabitants.

With the rapid urbanization in Asia Pacific, many countries experienced a significant change in their economic structure. The two city states, Hong Kong and Singapore, are the most compelling examples of that restructuring. Both, being former colonies of Britain, departed on policies to industrialize in the 1960s when their former roles as entrepôt trading and military bases were no longer sufficient to secure economic prosperity. Still under British rule, Hong Kong received a forceful economic and population boost by immigration from China and developed a strong industrial base in the 1970s with broad participation of indigenous capital and talent. Singapore, becoming an independent nation in 1965, followed on a similar growth path slightly later and with a stronger dependency on foreign investment. Both city states turned into highly urbanized and industrialized regions being closely integrated into the worldwide division of labor, performing large scale, standardized production at the lower end of the value chain. However, over time there was a gradual upgrading of their economic structure towards high value production and different kinds of services like finance, trade, management and producer services. Within only a twenty year period from 1980, both Hong Kong and Singapore have by now reached per capita income levels of highly developed countries.

The economic restructuring was accompanied by a spatial restructuring, the metropolitan centers of the city states developed into concentrations of knowledge-intensive activities, business and financial services. Standardized manufacturing and other space intensive production has been relocated into neighboring regions or states or even into the at this time 'newly' industrializing ASEAN countries or China. In the case of Singapore, it is locations in the state of Johor (Malaysia) where manufacturing is increasingly performed, and locations in Batam (Indonesia) where leisure and agricultural activities related to Singapore expand quickly. For metropolitan Hong Kong, it is in mainland China where large scale, space intensive and low cost production finds optimal locations. These locations may be as close as in the Special Economic Zone of Shenzhen, right on the border, that virtually exploded from economic and population growth in the past years, or in the heavily populated Pearl river delta, with its cen-

ter Guangzhou, about 150 km northwest from Hong Kong. Hong Kong, which is now a Special Administrative Region in China and except for certain foreign and military matters largely autonomous, has thus developed into a world or global city. It is specialized in information-based economic activities that link the local and regional resources of labor, knowledge and capital into the global flows. This applies similarly to Singapore, though, with its much smaller size, a strictly authoritarian state and a slower restructuring, these processes are not as pronounced. In the occupational structure of both cities finance, management, trade and producer services gain ever higher shares.

Simultaneously Hong Kong and Singapore fervidly pursue policies to upgrade their basis in high technology manufacturing and services associated with ICT. In Singapore for example a true nationwide broadband network is being implemented to offer each citizen all technologically available modern applications of the information age for work, leisure and administrative issues. Two 'technology corridors' are being planned to combine top level public and private research institutions, national and international high technology firms with high standard housing and living environments into a 'multimedia utopia'. In Hong Kong concerns that the 'hollowing out' from manufacturing needs to be counterbalanced by innovative, high technology production and ICT related services have also lead to public and private initiatives to forward these modern sectors. The 'cyberport' designated to offer jobs to 12,000 professionals is scheduled to be completed by 2007, a 'cyperincubator' project is in process aimed at fostering the growth of new, innovative firms, and a huge project termed 'silicon harbor' intended to be a world center for the production of next generation microchips is under discussion. Similar undertakings are planned or in realization in other Pacific Asian countries with the 'Multimedia Super Corridor' in Malaysia probably being the most prominent one. Equipped with up-to-date electronic and physical infrastructure, it is designated to house two newly designed 'intelligent' cities, offering knowledge-intensive jobs to more than 100,000 employees in science, research, modern industries and services. These mega-projects in Pacific Asia stand for what Graham (2000) labels the 'constructing of premium network spaces' now found across the globe. The standardized, ubiquitous 'fordist' type of infrastructure is receding as hegemonic form and being replaced by place-specific new, customized high performance ICT infrastructure creating highly uneven spatial patterns of growth.

The rise of Pacific Asia accelerated structural changes, as in all Western countries, so in Australia where the composition of industries and occupations changed rapidly. The main feature of change in the structure of industries is that manufacturing employment in Australia shrank

rapidly and producer services' jobs increased. Taken together *property and business services* and *finance and insurance services* now employ almost as many people as the single largest subsector *retail trade*. As concerns occupational categories: the number of symbolic analysts increased stronger than the number of in-person service workers while routine production employment declined.

The major political forces in Australia supported restructuring, liberalization and de-regulation. In Australia, where employment relations were once extremely regulated and centralized, and tariff protection one of the highest in the industrial world, deregulation towards decentralized workplace-based bargaining was implemented, tariffs were cut down to OECD average and free trade is targeted. Most control and protection measures of the financial system were removed. With these changes in political regulation, social inequality increased in Australia through the late eighties and early nineties, though not to the extreme levels of other Anglo-Saxon countries.

Still, in spite of radical restructuring, Australia's performance in international competition is subject to concern. In international comparisons of knowledge intensive economies, Australia holds leading positions only for infrastructure related indicators. For important technology and human capital indictors Australian values are below OECD averages. And, looking at Australian exports, although the share of 'elaborately transformed manufactures' has been increasing over recent years, resource based goods from agriculture and mining still comprise the largest share up to now. Imports, on the other hand, mainly consist of goods with high technological intensity, computers, ICT equipment, pharmaceuticals etc. In trade with services a similar structure exists. Australia's service exports are dominated by transport and travel (tourist) services, mainly for Asian consumers. Only a small share of service exports can be considered as producers services, and these are traded primarily with Anglo-Saxon countries. Overall, there is a substantial deficit in producer services trade, which is rather un-typical for an advanced country. A further element of imbalanced foreign relationships is re-vealed by the disproportion in direct foreign investment flows. The net sum of cumulated out-flows and inflows over the past ten years reveals a huge deficit, contributing significantly to Australia's chronic current account deficit and leading to an large transfer of capital income to foreign countries.

The inflow of foreign capital and the financial liberalization spurred the development of new markets, institutions and firms in Australia, which concentrated in Sydney. In *finance and insurance* services, a subsector of producer services according to the categorization by the

Australian Bureau of Statistics, Sydney's leading position among Australian capital cities is most pronounced. Sydney has the highest numbers of employees in absolute terms and also in relation to population. In *property and business services*, the second subsector of producer services, Sydney also clearly leads before the other larger capital cities. The city's outstanding role as Australia's center of the financial sector is demonstrated even more compelling when the locations of bank head offices and foreign banks are compared; they overwhelmingly concentrate in Sydney. Together with the publicly controlled institutions like the Reserve Bank, Stock and Futures Exchange and a large array of smaller enterprises ancillary to the financial sector, such as rating and counseling agencies, these firms constitute a cluster involved in frequent, non-standardized and often face-to-face economic relationships.

Higher level corporate functions of other sectors are also overly represented in Sydney, though, to lower degree. Sydney is home to the majority of headquarter locations of the top 100 Australian firms and in addition to almost two thirds of the regional headquarters of foreign multinational companies.

Further impulses driving Sydney, and the whole metropolitan area, towards a knowledge-based regional economy come from the large magnitude of research and development expenditure and resulting R&D activities. Expenditure from the business sector, definitely the most important source of total R&D expenditure, is largest in NSW, second largest in Victoria. And the Sydney region in addition retains the largest number of locations of Cooperative Research Centers (CRCs), intended to serve as major nodes of cooperation between public and private institutions developing innovative products and services.

In R&D activities, predominantly related to natural sciences and engineering and performed by a highly skilled and specialized workforce, the other capital city regions, in particular Melbourne, also contribute important shares to total Australian employment and output. Even the middle sized capital city regions of Perth, Adelaide and Canberra are locations to a sizable numbers of CRCs. And when measured by their share of national income in consultant engineering services, for example, the state of Victoria and hence the Melbourne region, even outpaces NSW, that is basically the Sydney region.

A view cutting across traditional notions of sector limits or the goods and services dichotomy is proposed by theorists referring to the culture industries, which are often seen as paradigmatic for the emerging post-fordist organizational and locational structures. Though data limitations do not allow a comprehensive assessment of their importance or a comparison with other metropolitan regions, culture industries provide decisive additional strength to Sydney's economic base and reinforce the city's prime role. It can be shown, for instance, that

Sydney's share of the total national employment in the *media and publishing* industry is above one third, which is two times as high as Melbourne's, and four times that of Brisbane. Major Australian firms in the media and entertainment business are located in Sydney and, in particular, many firms performing film and television program production now cluster in the region, in part performing specialized and post-production tasks for domestic and overseas producers. Although the digitalization of production in this sector opens new chances for international collaboration, limits to the development of indigenous firms are to be seen in the lack of inter firm networking and in the insufficient access to and relatively high cost of high bandwidth telecommunication capacity.

On the whole, the Sydney region appears to have profited from cumulative growth effects over the past decades. In some sectors, in particular finance and insurance and media and publishing, growth mechanisms seem to have developed, where increasing regional output of goods and services leads to increasing specialization and productivity, which in turn attracts new capital and labor, further contributing to output growth. As yet, these growth processes appear to continue, not fundamentally restricted by congestion factors or environmental limitations. Favorable locational factors persist, attracting new investment and inhabitants. Population growth for the Sydney statistical division is above the national average, with some inner city suburbs experiencing remarkable increases in population. The ethnic composition of the regions' population has become ever more cosmopolitan. If first and second generation immigrants are taken together, their share is around 60% of the population.

While Sydney's predominance is, at least in many economic segments, rather obvious and unrivaled in the national Australian context, its position in the global system of world cities is far less clear and, moreover, challenged by other metropolises in Asia Pacific. Besides Tokyo occupying a prime position as a world city, primarily Hong Kong and Singapore compete with Sydney in the attraction of talent and international investment, such as the location of regional headquarters of multinationals. Data from the early 1990s, frequently quoted, suggest that Sydney was the location of over one third of such regional headquarters of producer service firms, Hong Kong accordingly was home to a little less than one third, other Australian cities and Singapore had far smaller shares. Recent data, covering a far larger data set of corporations and including regional headquarters and regional offices, however, indicate rather the opposite. Over one third of these locations are to be found in Hong Kong, a little less than one third in Singapore, and only 5% in Sydney.

Apart from such partial comparative results, research about global urban hierarchies has in recent years been founded on extensive theoretical and empirical work, allowing rather comprehensive comparisons and rankings of cities. While much earlier work, like the writings of John Friedmann or Saskia Sassen, concentrated on the theoretical foundations of world city research and roles of single, leading cities highlighting the interdependence of globalization and the emergence of world cities, much recent research has tried to remedy the severe data deficit that long hampered empirical substantiation of many claims in world city research. The GaWC Study Group and Network at the University of Loughborough emerged as a focus of these endeavors publishing numerous contributions, which allow the position of single cities in global urban hierarchies or their role in global flows of information to be assessed.

At the initial methodological level, a hierarchical system of world cities is proposed. Based upon 'significant presences' of large producer services firms, this approach leads to an inventory of 55 world cities and classifies them according to three levels. The amount of 10 cities are rated as Alpha and also 10 as Beta world cities, 35 have Gamma world city status. The highest ranking cities, Alpha world cities, are then metropolises like London, New York and Tokyo with Hong Kong and Singapore on the same level. Sydney is considered as a Beta world city, as are places like San Francisco or Toronto.

On a deeper level of analysis each single location of 100 global producer services firms in 316 cities was judged according to its importance in the global network of that firm. The resulting 'service values' can be aggregated for each city and define the *global network connectivity* of that city, which then is a quantitative measure for the strength of a city as node in the global network. London and New York's outstanding position is reaffirmed through that analysis, the two cities having by far the highest values of the connectivity index. Hong Kong's role is underscored with rank three, Singapore is placed on rank 6 and Sydney on rank 13. Since except Tokyo (on rank 5) no other city in Asia Pacific is ranked better than Sydney, these results confirm both the important roles these three cities play in the integration of their macro-region into global markets and the differences in their hierarchical standing.

A further analysis of these differences in the hierarchical position of Hong Kong, Singapore and Sydney reveals that hierarchies of cities for single sectors of producer services can deviate significantly from the summary index ranking. A data set for global service firms in 28 large cities along the Pacific Rim allows the role of each city to be assessed separately for the sectors accounting, advertising, banking/finance and law. While thus the role of Hong Kong and Singapore (as well as Tokyo) is unrivaled in banking/finance, Sydney leads in advertising before Singapore and Hong Kong. Melbourne and Auckland also perform here

rather well. In law, conversely, American cities lead followed by Hong Kong, Sydney performs rather mediocre. But in accounting Sydney's position is in the top group once again, second to Tokyo, outperforming Hong Kong and Singapore.

These results suggest moreover that the specific producer service sectors create different patterns of globalization, which in turn means that the detailed economic structure of world cities, beyond the significance of producer services in total and headquarter functions, can hardly be expected to be captured by a simple formula. How then can world cities be classified into groups of similar cities, and what are factors that describe their similarity or difference?

The GaWC group answered these questions by applying a factor analysis to a data set for 100 global service firms with offices in 123 cities. Most of these cities can be grouped into one of five clusters of cities with very similar mixes of producer service firms and this five group pattern represents the fundamental structure of the data matrix. A number of cities, however, in particular the leading ones, London and New York, remain unallocated which means that their service structure is clearly distinct from those of other cities.

The five clusters fused from similar cities are (1) United States cities, (2) Euro-German cities, (3) Old Commonwealth cities, (4) Pacific-Asian Cities and (5) Outer cities, where the latter comprise cities outside the main arenas of contemporary globalization. These classification results demonstrate the strength of geographic influences (on the structure of the cities' service mixes) combined with socio-economic and historical influences. The latter are manifested in the cluster of Old Commonwealth cities, including mainly cities that once performed important colonial functions, from Calgary in Canada down to Auckland in New Zealand.

Hong Kong and Singapore, however, are not fused with the group of Old Commonwealth cities, but show the highest correlations to the cluster of Pacific-Asian cities. They have now acquired important functions on the global level, independent from their historical heritage. Sydney plays yet another role in that analysis, it is unallocated like many other important world cities. If anything, it has certain degree of similarity with Pacific-Asian cities. Since Sydney, with its cultural and historical roots in the Commonwealth, is hence the only city in Australia and New Zealand displaying these characteristics, this indicates that Sydney has taken over new functions in global service activities and moves towards a stronger integration with the rapidly developing Pacific Asian hemisphere and the wider world markets in general.

One key sector where Sydney has attracted important functions is the global culture industry. While this sector has largely been disregarded in empirical world city research, its fundamental significance for post-fordist restructuring and urban development is widely recognized. In an analysis published by the GaWC group, constructed similar to their basic inventory of world cities, a classification of 284 cities is performed with data for almost 2800 locations of 33 global media firms. Only 39 of all the cities included are then classified as 'world media cities' of which 7 are rated with the highest status (Alpha), 15 with medium status (Beta), and 17 with the lowest status (Gamma).

One essential finding is that the locations are highly concentrated in the higher ranking world media cities. The other is that in this classification some cities have rankings very similar to those in the basic world city inventory, but others are very differently. The first applies to New York and London, which are both unmistakably again at the apex of the ranking, followed after some distance by Paris and Los Angeles. Similarly a large gap exists between a large array of cities and these four cities on the top; these 16 cities are the remaining Alpha and all Beta world media cities. Besides just two exceptions, namely Toronto and Sydney, all 16 cities are all located in Europe, covering its South, West, North and East. In that way Sydney emerges as the clearly dominating world media city in Asia Pacific. Singapore and Hong Kong reach only Gamma status, so do Tokyo and Melbourne. In the worldwide networks of global media firms that are strongly shaped by European locations, reflecting Europe's cultural force and diversity, Sydney consequently takes a very prominent position. It is obviously the place for many firms to perform decisive functions, integrating the Asian Pacific space into global media markets.

The restructuring and globalization of Sydney's economic base over the past decades and changes in political regulation have created winners and losers among the urban population of Sydney, as they have in other metropolitan regions. The resulting spatial pattern of socio-economic 'opportunity' and 'vulnerability' has recently been examined for all 240 Statistical Local Areas (SLAs) of the Australian mega metropolitan regions. These SLAs, largely equivalent to Local Government Areas or local communities, have been classified on the basis of a wide range of socio-economic indicators using cluster analysis. As a result, nine clusters of communities can be identified that span a continuum, ranging from one cluster of highest opportunity to one cluster of severest vulnerability. Six clusters lie in between that represent different degrees of either opportunity or vulnerability, and are also differentiated by spatial characteristics, and one cluster is placed in between these two groups.

Almost all communities of the northern part of inner and outer Sydney belong to the first cluster, representing the highest opportunity levels. In relation to the average of all metropolitan communities, this cluster is characterized by the highest share of symbolic analysts, the highest share of high income households and the lowest unemployment rate. The opposite conditions are given in the communities of the cluster with severest vulnerability. In comparison to the overall metropolitan average, this cluster is typified by a very high share of routine production workers, the highest share of low income households and the highest unemployment rate. In Sydney, not a single community is classified into this cluster of severest vulnerability, marking a strong contrast to Melbourne, where about a dozen of communities are ordered into this cluster.

A number of Sydney's communities are, nonetheless, grouped into (other) vulnerability clusters. Some of these communities are in the inner Sydney region, but the majority are located in the outer metropolitan region. The burdens of restructuring and globalization in metropolitan regions thus appear clearer in Sydney's outer communities, as well as in other cities experiencing painful restructuring, in particular, in Melbourne, while the positive effects are exposed in Sydney's affluent inner and northern suburbs.

References

ABS (2000) Australian Bureau of Statistics, *Special Article – Looking into the future – Australian Population Projections* (March, 2000), Australian Demographic Statistics.

ABS (2001a) *Population – Population size and growth*, www.abs.gov.au/ausstats.

ABS (2001b) *Population – Population distribution*, www.abs.gov.au/ausstats.

ABS (2001c) *Population – Special Article – Australia's Regional Population Growth (Sep, 2000),* www.abs.gov.au/ausstats

ABS (2001d) *Service Industries*, www.abs.gov.au/ausstats.

ABS (2001e) *Manufacturing, Special Article – Manufacturing in the twentieth century,* www.abs.gov.au/ausstats.

ACI (2001) Airport Council International, The World's busiest Airports, *ACI Traffic Data: World airports ranking by total passengers - 2000 (prelim.)*, www.airports.org/traffic.

APEC (2001) Asian Pacific Economic Cooperation, Economic Committee, *Towards Knowledge-Based Economies in APEC*, Framework and Summary. www.isr.gov.au/ industry/kbe/publications.

APG (2001) Allen Perkins Group, *Hong Kong's Position as Key Regional Headquarter Center to Strengthen in Coming Years (Translation John Lui)*, www.financial-planner-asia.com.

Arimura, S. (1999) *How Matsushita and Sony Manage Global R&D*, in: Research - Technology Management, March-April 1999.

ATSE (1999) The Australian Academy of Technological Sciences and Engineering, *PPPs for Telecommunications Development in Australia*, www.atse.org.au.

Baum, S., Stimson, R., O'Connor, Mullins, P., Davis, R. (1999) *Community Opportunity and Vulnerability in Australia's Cities and Towns – Characteristics, Patterns, and Implications*. Australian Housing and Urban Research Institute, Brisbane: University of Queensland Press.

Beaverstock, J. V., Smith, R. G., Taylor, P. J. (1999) *A Roster of World Cities*, in: Cities, 6, pp. 445-458.

Bishop, R., Case, D., Axlaris, S., Plante, J., Allsop, D. (2000) *Innovation in the Australian Film Industry*, Paper by the Working Group for PMSEIC (Prime Minister's Science, Engineering and Innovation Council), Fifth Meeting, Agenda Item 4.

Bora, B., Lewis, M. K. (1997) *The Australian Financial System: Evolution, Regulation, and Globalization,* in: Law and Policy of International Business, 28/3, pp. 787-811.

Burnely, I. H. (1998) *Immigrant City, Global City? Advantage and disadvantage among communities from Asia in Sydney,* in: Australian Geographer, 29/1, pp. 49-70.

Chiu, S. W. K., Ho, K. C., Lui, T. (1997) *City-States in the Global Economy – Industrial Restructuring in Hong Kong and Singapore.* Boulder: WestviewPress.

Commission in Strategic Development (2000) *Bringing the Vision to Life: Hong Kong's Long-term Developments Needs and Goals*. Central Policy Unit, Hong Kong, Special Administrative Region.

Corey, K. (2000) *Intelligent Corridors: Outcomes of Electronic Space Policies*, in: Journal of Urban Technology, 7/2, pp. 1-22.

Department of State, United States of America (2000) *FY 2000 Country Commercial Guide: Australia*.

DFAT (2001) Australian Department of Foreign Affairs and Trade, *Fact Sheets, May 2000*, www.dfat.gov.au/facts/trade.html.

DISR (1999) Department of Industry, Science and Research*, Measuring the knowledge-based Economy, How Does Australia Compare*, Volume I: Main Report.

DOTRS (2001) Department of Transport and Regional Services, *Summary of the Environmental Impact Statement for the Proposed Second Sydney Airport at Badgerys Creek*, www.dotrs.gov.au/airport/eis.

Douglass, M. (2000) *Mega-urban Regions and World City Formation: Globalisation, the Economic Crisis and Urban Policy Issues in Pacific Asia*, in: Urban Studies, 37/12, pp. 2315-2335.

DUAP (1998) NSW Department of Urban Affairs and Planning, *Shaping Our Cities*, The Planning Strategy for the Greater Metropolitan Region of Sydney, Newcastle, Wollongong and the Central Coast, www.duap.nsw.au/plansforaction/metro.html.

Enright, M. J., Ffowcs-Williams, I. (2000) *Local Partnership, Clusters and SME Globalisation,* Background Report, Workshop 2, Conference 'Enhancing the Competitiveness of SMEs in the Global Economy: Strategies and Policies', Bologna, OECD/Italian Ministry of Industry.

ESCAP (2001) United Nations Economic and Social Commission for Asia and the Pacific, Development Research and Policy Analysis Division, *Economic and Social Survey of Asia and the Pacific*, 2001, www.unescap.org/drpad/survey2001.

Forbes, D. (1997) *Metropolis and Megaurban Region in Pacific Asia*, in: Tijdschrift voor Economische en Sociale Geografie, 88/5, pp. 457-468.

Friedmann, J., Wolff, G. (1982) *World city formation: an agenda for research and action*, in: International Journal for Urban and Regional Research, 3, pp. 309-344.

Friedmann, J. (1986) *The world city hypothesis*, in: Development and Change, 17/1, pp. 69-84.

Friedmann, J. (1995) *Where we stand: a decade of world city research,* in: Knox, P. L., Taylor, P. J. (Eds.) World Cities in a World System. Cambridge: Cambridge University Press.

Gipps, P., Brotchie, J., Hensher, D., Newton, P., O'Connor, K. (1996) *The Journey to Work, Employment and the Changing Structure of Australian Cities,* Research Monograph No. 3, CSIRO and the Australian Housing and Urban Research Institute, Melbourne.

Graham, S. (2000) *Constructing Premium Network Spaces- Reflections on Infrastructure Networks and Contemporary Urban Development*, in: International Journal of urban and Regional Research, 24/1, pp. 183-200.

Hofmeister, B. (1988) *Australia and its Urban Centers*. Berlin: Borntraeger.

Kommission der EG (Europäischen Gemeinschaften) (1994) Generaldirektion Wirtschaft und Finanzen, *Europäische Wirtschaft* Nr. 56/1994.

Jessop, B,. Sum, N.-L. (2000) *An Entrepreneurial City in Action: Hong Kong's Emerging Strategies in and for (Inter)Urban Competition*, in: Urban Studies, 37/12, pp. 2287-2313.

Krätke, S. (2002) *Global Media Cities in a Worldwide Urban Network,* GaWC Study Group and Network, Research Bulletin 80.

Langdale, J. (1991) *Telecommunication and cities: International Perspectives*, Urban Policy and Research, 9/4, pp. 230-233.

Lash, S., Urry, J. (1994) *Economies of Signs and Space*. London: Sage.

Lipietz, A. (1992) *Towards a New Economic Order: Postfordism, Ecology and Democracy.* Polity Press: Cambridge.

Lipietz, A. (1997) *The post-Fordist world: labour relations, international hierarchy and global ecology,* in: Review of International Political Economy, 4/1, pp. 1-41.

Lo, F., Yeung, Y. (Eds.) (1999) *Emerging world cities in Pacific Asia,* 2nd ed. Tokyo: United Nations University Press.

Lo, F., Yeung, Y. (1999) *Global restructuring and emerging urban corridors*, in: Lo/Yeung (1999).

Lundvall, B.A., Johnson, B., Andersen, E.S., and Dalum, B.(2001) *National innovation of production, innovation and competence-building*, Paper presented at the Nelson and Winter DRUID Summer Conference, Aalborg, Denmark.

Macleod, S., McGee, T. G. (1997) *The Singapore-Johore-Riau Growth Triangle: An emerging extended metropolitan region*, in: Lo/Yeung (1997).

McGee, T. G. (1991) *The emergence of desakota regions in Asia: expanding a hypothesis*, in: Ginsberg, N., Koppel, B., McGhee, T. G. (Eds.) The Extended Metropolis: Settlement Transition in Asia, pp. 3-25. Honululu: University of Hawaii Press.

Miyake, M., Thomson, S. (2001) *Recent Trends in Foreign Direct Investment*, OECD online, Investment, Capital Movements, Services, www.oecd.org/dat/investment.

Murphy, P. (1999) *Sydney Now: Going Global in the Space of Flows*, in: O'Connor (ed.), Houses and Jobs in Cities and Regions, Research in Honour of Chris Maher, Australian Housing and Urban Research Institute. Brisbane: University of Queensland Press.

Neilson, L. (2001) *Australian Cities – Technology and Change*, Centre for Developing Cities, University of Canberra, www.cities.canberra.edu.au/publications.

Newton, P. W., Brotchie, J. F., Gipps, P. G. (1997) *Cities in Transition: Changing Economic and Technological Processes and Australia's Settlement System*, Australia: State of the Environment, Technical Paper Series (Human Settlements) Department of the Environment, Canberra.

O'Connor, K., Daniels, P. (2000) *The Geography of International Trade in Services: Australia and the APEC Region*, Paper presented at the conference 'The Economic and Socio-Economics of Services: International Perspectives', University of Lille, June 22-23.

O'Connor, K., Stimson, R. J. (1995) *The Economic Role of Cities: Economic Development and City Development, Australia 1971-1991*, Commonwealth Department of Housing and Regional Development, Urban Futures Program, Australian Government Publishing Service, Canberra.

O'Connor, K., Stimson, R. J., Baum, S. (2001) *The Role of Economic Geography in Australia's Environment for Growth*, in: Niewenhuysen, J. et al. (Eds.) Australia: Creating an Environment for Growth, Cambridge University Press, Committee for the Economic Development of Australia.

OECD (1996) Organization for Economic Co-operation and Development, *The Knowledge Based Economy*, Paris.

Park, J. (1997) *Globalization and Mega-City Development in Pacific Asia*, The United Nations University, Institute of Advanced Studies, Working Paper No. 30.

Perry, M., Kong, L., Yeoh, B. (1997) *Singapore – A Developmental City States*, Chichester: John Wiley.

Porter, M. E. (1990) *The Competitive Advantage of Nation.* New York: Free Press.

Porter, M. E. (1998) *Competitive Advantage : Creating and Sustaining Superior Performance*. Free Press: New York.

Reich, R. (1992) *The Work of Nations*, New York: Vintage Press.

RICC (1999) *Report of the Working Group on Resource and Infrastructure Consolidation and Cooperation (RICC),* Prepared for the National Innovation Summit (to be held February 9-11, 2000), December 11, 1999.

Roelandt, T.J.A., den Hertog, P. (1998*) Cluster Analysis & Cluster-based Policy in OECD-Countries*, Draft synthesis report on phase 1, OECD-Focus Group on Industrial Clusters, The Hague/Utrecht.

Sassen, S. (1991) *The Global City.* London: Pine Forge Press.

Sassen, S. (1994) Cities in a World Economy. London: Pine Forge Press.

Sassen, S. (1999) *Global Financial Centers*, in: Foreign Affairs, 78/1, pp. 75-87.

Scott, A. J. (1988) *Metropolis - From the Division of Labor to Urban Form.* Berkeley: University of California Press.

Scott, A. J. (1997) *The Cultural Economy of Cities,* in: International Journal of Urban and Regional Research, 21/2, pp. 324-339.

Scott, A. J. (1998) *Regions and the World Economy: The Coming of Shape of Global Production, Competition, and Political Order.* Oxford: Oxford University Press.

Scott, A. J. (2000) *The Cultural Economy of Paris*, in: International Journal of Urban and Regional Research, 24/3, pp. 567-582.

Searle, G. (1996) *Sydney as a Global City*, Discussion Paper, Department of Urban Affairs and Planning, Department of State and Regional Development, New South Wales.

Sheehan, P. (1999) *Innovation and the Australian Challenge*, Contributed Paper #10, Center for Strategic Economic Studies, Victoria University of Technology.

Short. J. R., Kim, Y., Kuus, M., Wells, H. (1995) *The Dirty Little Secret of Wold City Research: Data Problems in Comparative Analysis*, in: International Journal of Urban and Regional Research, 20/4, pp. 697-717.

Short, J. R. (2002) *Black Holes and Loose Connections in the Global Urban Network*, GaWC Study Group and Network, Research Bulletin 76.

Singelman, J. (1978) *The Transformation of Industry: From Agriculture to Service Employment.* Beverly Hills, CA: Sage.

Smith, R. G. (2002) *World City Actor-Networks,* GaWC Study Group and Network, Research Bulletin 71.

Stein, R. (2002) *Producer Services, Transaction Activities, and Cities - Rethinking Occupational Classifications in Economic Geography*, in: European Planning Studies, 10/6, pp. 723-743.

Stimson, R. J., Shuaib, F., O'Connor, K. (1998) *Population and Employment in Australia, Regional Hot Spots and Cold Spots, 1986-1996,* Australian Housing and Urban Research Institute, Brisbane.

Storper, M. (1997) *The Regional World: Territorial Development in a Global Economy*. New York: Guilford Press.

Taylor, P. J., Walker , D. R. F. (2000) *World Cities: A First Multivariate Analysis of their Service Complexes,* GaWC Study Group and Network, Research Bulletin 13 www.lboro.ac.uk/gawc.

Taylor, P. J., Catalano, G. (2001) *World City Formation in a Space of Flows,* GaWC Study Group and Network, Research Bulletin 61.

Taylor, P. J., Catalano, G., Walker, D. R. F. (2001) *Exploratory Analysis of the World City Network,* GaWC Study Group and Network, Research Bulletin 50.

TIAC (2001) Western Australian Technology & Advisory Council, Research and Development, *The Role of the State in Attracting External Funding*, www.wa.gov.au/tiac/ rdfunding/appendix4-08.html.

Treuren, G. (1998) *Regulation Theory and Australian Theorising of Institutional Change in Industrial Regulation*, Paper presented at the 12th AIRAANZ (The Association of Industrial Relations Academics of Australia and New Zealand) Conference, 3-5 February 1998, Wellington, New Zealand.

Walker, R. A. (1985) *Is there a service economy? The changing capitalist division of labor,* in: Science & Society, Spring 1985, pp. 42-83.

Yeung, Y. (2000) *Globalization and Networked Societies – Urban Regional Change in Pacific Asia*, Honolulu: University of Hawai'i Press.