

development, and the socio-technical networks of service and underservice that represent the distributions of power in the city and globally (Tarr 1984, Swyngedouw 1993). In sum, the study of infrastructure investment is the study of urban development.

See also: Communication: Geographic Aspects; Public Goods: International; Telecommunications: Policy; Telegraph; Telephone; Transportation Planning; Transportation: Supply and Congestion; Urban Geography

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D. C. Perry

Infrastructure: Social/Behavioral Research (Japan and Korea)

1. Phases of Development After 1945

Modern social science originated outside Asia (Inoguchi 1995). In Japan and Korea, which was under Japanese colonial rule for much of the first half of the twentieth century, modern social science meant, initially, European-born Marxism planted onto Asian soil. Hence, the social sciences meant the opposition science, *Oppositionswissenschaft*, the science those opposing the regime adopted to reveal the oppressive and exploitative nature of the system. Marxist influence permeated the social sciences deeply. Coupled with the overtly nationalistic overtones characteristic of Asia, Marxism was not necessarily conducive to the early adoption and diffusion of behavioral and social sciences that characterized the American scene of the 1950s and 1960s. In other words, the dominance of Marxism in the social sciences meant higher barriers against the adoption of American-style behavioral and social sciences even in the 1950s and 1960s.

Furthermore, the earlier dominance of state science, *Staatslehre*, the science that purported to be useful to the state's governance, had a lingering influence on the fledgling social sciences in the first half of the twentieth century and beyond. Instead of trying to come up with law-like generalizations, state science was interested in supplying specific, concrete, and context-based knowledge. It encouraged historical and institutional description. State science was interested in applied subjects like law and economics, but not political science, sociology, or social psychology. State science was interested in history and geography, as far as they could be utilized in running the country and the colonies. Therefore, in Japan and Korea in the 1940s and 1950s, the traditions of the opposition science and state science, two most overtly politically conceived traditions, slowly adopted the American-style social sciences of the 1940s and 1950s in a mutually reinforcing direction.

Nevertheless, American-style social sciences started to permeate steadily into the rest of the world after 1945. The remarkable development of the American model of the professional academic market in the first half of the twentieth century prepared the United States to excel itself in the social sciences in the latter half of the century. As carefully portrayed by Zunz (1998), it is characterized by competition, based on a certain set of criteria within the academic community, and the loosely orchestrated concertation of government, industry, and the mass media to nurture and make use of academic resources and products. Furthermore, the influx of many European refugees stimulated the American scene dramatically. The number of Nobel Prize winners from the United States was modest each year between 1901 and 1937, some-

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what comparable to the figure of Japan after 1945. Thereafter, it rose dramatically, achieving a dominant share (Inoguchi 1989).

Three major features of American-style behavioral and social sciences are (a) a strong drive to come up with law-like generalizations; (b) a strong commitment to systematic, empirical hypothesis testing; and (c) shared beliefs in anonymous referees producing good judgments and improved manuscripts. These features were not necessarily in good harmony with the prevailing academic cultures of Japan and Korea in the 1940s and 1950s. Their interests lay in more historical and contextual descriptions, not necessarily in law-like generalizations. Their efforts to advance the argument were not necessarily made in a sustained fashion of systematic empirical hypothesis testing. They were extremely averse to the idea of their work being anonymously refereed for publications. Thus in the 1940s and 1950s, American-style behavioral and social sciences were not able to make a striking advance in Japan and Korea. Only in the 1960s and 1970s, were they to ride on the tide of behavioral and social sciences as understood and practiced in the United States. The 1960s and 1970s were also the period of the extraordinary economic growth of Japan and Korea. In tandem with economic development, the academic infrastructure was consolidated, and academic orientations came of age in their national environments.

2. National Environments and Institutional Structures

The higher educational legacy of imperial Japan, which ended in 1945, contributed most directly to the shape of the academic infrastructure of the behavioral and social sciences in Japan and Korea after 1945. Its major features were:

(a) an elitist structure of imperial universities with the number of professors and enrolled students being highly limited;

(b) a curriculum serving the needs of the government in terms of supplying the elite cadres in applied areas of study such as medicine, agriculture, engineering, law, and economics; and

(c) two European languages, German and French, equally emphasized with English, for students to learn.

After 1945, the number of colleges and universities grew rapidly in US-occupied Japan, where each of the 47 prefectures built a national university. Furthermore, private universities grew in number more dramatically in the 1960s and 1970s. The elitist nature of Japanese universities was played down considerably throughout those years. Rather, Japan, and to a lesser extent Korea, registered a high admission rate of high-school graduates comparable to that of the United States, achieved through a very inclusive enrolment scheme. The nature of the curriculum has also signifi-

cantly changed in tandem with the extraordinary growth of student enrolment and staff appointment from the 1960s to the 1990s. In the case of the University of Tokyo, for instance, the relative priority of staff appointments remained the same. It expanded in applied science areas, especially engineering, the life sciences, medicine, pharmacology, and agriculture. As of 2000, 80 percent of the annual budgetary allocation goes to those applied science areas. Only 20 percent of it goes to law, economics, literature, education, and other nonscience areas of study (University of Tokyo 2000). However, in most private universities, those applied science areas of study have not been well prioritized in terms of faculty development and student enrollment, thanks to the general paucity of budgetary resources as a whole.

However, this does not mean that a favorable national environment has been created for the development of the behavioral and social sciences. Within the non-applied science areas of study, roughly the traditionally conceived arts and sciences, autonomous departmental status has not been given to the behavioral and social scientific disciplines. The political science discipline has been an appendix to schools of law (a legacy of state science); the school of economics has a curriculum giving very high importance to applied economics and history; and the school of literature has departments of sociology, social psychology, and anthropology without their autonomous status in terms of staff appointment and budgetary allocation. Rather, they remain parts of the schools of law, economics, and literature and sometimes serve as their mere appendices.

In this regard, Korea, unlike Japan, thanks to its nationalism and much stronger American influences in higher education, has developed its institutional structure far ahead of the Japanese imperial legacy. The emphasis on European languages was replaced by the predominant use of English after 1945. This has facilitated the diffusion of American-style behavioral and social sciences.

Turning to the topic of institutional and financial setups, there are three major ways in which behavioral and social science research is conducted:

(a) within the university system;

(b) by extrauniversity institutes; and

(c) the system of project funding through national organizations and foundations.

Behavioral and social science research is predominantly conducted within the university system. Small-scale research is normally conducted by making best use of a small amount of research budget made available to each professor. At some universities, schemes for facilitating larger and more interdisciplinary research exist. However, the size of budget tends to be small. Therefore, once research needs get large in terms of funding needs, one tends to rely on other schemes (the Japan Society for the Promotion of Sciences 2000).

In addition to the university system, there are some research institutes primarily devoted to the planning, implementation, and dissemination of research on national and sometimes international bases. They are either publicly funded or run by the mix of private and public money. In Japan, for example, the National Museum for Ethnographic Research in Osaka, the largest such institute run by public money, focuses on anthropology. The Institute organizes various projects incorporating professors working in universities. The Institute of Statistics and Mathematics in Tokyo, also run by public money, is a similar organization that focuses on public opinion research on national characters and life styles. In Korea, a similar institute, the Sejong Institute, is publicly and privately funded and works on a variety of subjects in sociology, political science, and urban studies.

Some institutes work on more direct, public policy related research topics like 'public policy priorities in aging societies,' while others work on more purely academic subjects like 'life styles, postmodern, post-Confucian, and post-Marxist.' They vary enormously (NIRA 2000, Yamamoto, 2000).

The system of project funding through national organizations and foundations is important in Japan and Korea. In Japan, the Japan Society for the Promotion of Sciences plays roles similar to those of the National Science Foundation of the USA, giving financial support to various academic projects (the Japan Society for the Promotion of Sciences 2000). The National Institute for Research Advancement in Tokyo is an organization funding more public policy focused projects run by various think tanks in Japan and elsewhere (NIRA 2000, Yamamoto, 2000). The Japan Foundation in Tokyo is a foundation run by public money to assist research financially and to disseminate academic, artistic, linguistic, and other professional projects globally (the Japan Foundation 2000). In Korea, too, similar organizations and foundations exist. Many private foundations exist in both countries in addition to these public organizations and foundations. Some focus on gender studies, academic and professional exchanges, human security, and international financial needs, while others give preference to more public policy related projects.

In terms of infrastructure development for the behavioral and social sciences, the university system is central and most helpful after all. Most project focused funding does not support infrastructure development. In order to develop an academic infrastructure, such as building joint centers for survey research or for experimental laboratories, interuniversity consortiums for databases, electronic networks, and publishing houses, one needs to rely mostly on public money.

A joint university center for survey research does not exist in Japan. What exists is the three to five year coalition based on the project funding of scientific research. With it, you build a research team and hire an opinion polling company for the survey. With the

ending of the project, everything except the database and published volumes disappears. My own scientific research project is a recent example of this. It is funded by the Ministry of Education over four years (1999–2002). It deals with 'globalization and the cultural dimensions of democracy in 18 societies of Asia and Europe' and has 1,000 in each sample, done by face-to-face interviewing (Blondel and Inoguchi 2000). A number of universities such as the University of Tokyo and Keio University in Tokyo have departments of social psychology and sociology, and research centers/institutes for research by mass communication. However, none of them undertakes such coalition building and coordination roles institutionally.

It is the same with respect to experimental laboratories. Again, they must be built with project funding for scientific research and can be maintained and expanded if, luckily, they continue for several years. One recent example is Toshio Yamagishi's experimental laboratory built to examine modes of trust experimentally and cross-nationally (Yamagishi 2000). With regard to social scientific databases, the University of Tokyo's Institute of Social Sciences (<http://www.iss.u-tokyo.ac.jp/>) has set up an inter-university consortium for databases in a similar fashion as the University of Michigan's Inter-university Consortium for Social and Political Research. Focusing on sociological, political, historical, and economic Japanese data, the consortium has been quite a success, albeit on a rather small scale, in organizing available databases and making them academically totally open and accessible to its members.

In terms of election networks, again project funding of scientific research by the Japan Society of Promotion of Sciences and the Ministry of Education is vital. Ikuo Kabashima has done so on seven Japanese election panel surveys through the 1990s, producing six published volumes dealing with various aspects of Japanese electoral behavior (Kabashima 1998–2000). Kabashima's database has largely expanded the data bank of the journal called *Leviathan: the Japanese Journal of Political Science*. The data bank has been more narrowly focused on election data and has run on a much smaller scale.

Publishing houses dealing with behavioral and social science books do not necessarily thrive in business. Given the fact that academic publishers cannot anticipate the regular purchase of academic books by major university libraries in the order of 300 to 500, the publishing infrastructure needs to be further consolidated. The publishing infrastructure for English language volumes has not been built in any meaningful way. Kodansha International is the only commercially self-sustainable publisher in the English language. It is not primarily oriented to academic books. The United Nations University Press in Tokyo has been quite a success in the late 1990s in continuously publishing good academic books on such topics as democracy, humanitarian interventions, and

the global environment, albeit on a modest scale. It has been distributed in North America by the Brookings Institution Press and has been included in the Columbia International Affairs Online (CIAO) Internet service on new publications. University presses such as the University of Tokyo Press and Kyoto University Press have English-language publishing departments. However, they only publish sporadically and their published books are mostly based on translations of books originally written in Japanese.

3. Strengthening the Asian Research Base

Social science research in Asia in general, and in Japan and Korea in particular, in the second half of the twentieth century, has become well institutionalized in its respective national settings and organizational structures. Japan and Korea, having diluted the two strong legacies of state science and opposition science that were prevalent in the first half of the twentieth century, and brought in a new set of American-style behavioral and social sciences, developed a fairly solid foundation for social science research in the second half of that century. Although its infrastructure remains to be much more vigorously improved in the future, the stage is clearly set for its further consolidation, especially in the light of the two pronounced trends of international cooperation and cross-national comparisons.

In Japan and Korea, as well as in Asia in general, international cooperation started with the United States. The United States has been a senior partner for Asia in general and Japan and Korea in particular for the whole time. Through bilateral research and teaching with the United States, by 2000, both latter countries had enhanced their national foundations of social science research. Toward the end of the twentieth century, it was clearly discerned that the trend in international cooperation had come to encompass the United States as well as Asia. Politics and economics matter here. In much of the latter half of the twentieth century, regional cooperation did not flourish much in part because of economics and politics. However, in the last decade of the twentieth century, Asian countries (here meaning the Asia-Pacific countries: Japan, Korea, China, and the 10 Association of Southeast Asian Nations members) came to interact among themselves.

It is not surprising that the new trend of enhanced intraregional research cooperation is in broad harmony with the increase in intraregional trade and the frequency of intraregional summit meetings. To a considerable extent, it looks as if the then newly found regional (i.e., Asian) identity pushed such a trend. However, this trend was primarily due to the very strong interest in cross-national comparisons. Once

national achievements have been completed more or less in terms of per capita national income and high levels of literacy, a sort of looking around and probing the cross-national propositions in social science research has become a norm, replacing the traditional approach by focusing on national patterns and developments. It is still far from claiming the beginning of an Asian social science.

Yet, a number of such seeds have already been sown and the prospect is not so bad. Let me give a couple of examples. Demography and the sociology of social mobility have been one of those areas of research where cross-nationally standardized observations are relatively institutionalized. The Japanese Sociological Association's panel study of Japanese social mobility, which started in the 1960s, has been further enhanced by incorporating comparative measurement and analysis in the 1990s (Seiyama and Hara 1999). The societies chosen for comparison are industrialized democracies of the West and fledgling democracies of the Asia-Pacific region. Another example is a new project comparing values, norms, and life styles of nine Asia-Pacific societies. It plans to utilize the Gallup Millennium Survey done in January 2000 in 82 countries (Tomie and Mano 2000, Emiko and Satoko 2000). The co-directors, Ahn Chung-Si of Seoul National University and Takashi Inoguchi, have been running this project.

Up to the late 1990s, the leadership for social science research cooperation in Asia-Pacific used to come primarily from the United States. Increasingly, since then, the trend is for intraregional cooperation by local initiatives, whether from Korea, Japan, Singapore, or Australia. Since there has not been an all-inclusive regional social science research council taking conceptual leadership and funding facilitation like the United States Social Science Research Council has long done, one cannot claim too much at this stage. However, one can easily discern budding initiatives and publications on such subjects as national identity, globalization, democratization, human rights, and civil society. Universities such as the University of Tokyo, Yonsei University, Chulalongkorn University, the National University of Singapore, and the University of Malaya as well as think tanks like the Institute of Southeast Asian Studies (Singapore), the Japan Center for International Exchange (Tokyo), and the United Nations University (Tokyo) are major agents for more academically oriented undertakings. With the resultant, cumulatively enhanced networks within the Asia-Pacific, one can hope with some cautious optimism that one can start discussing some budding features of social science in the region. These would surely synthesize a diversity and openness of views and angles that would come up with empirically testable comparative propositions on major trends and patterns of democratization, digitalization, and globalization, and their differentiated impacts on local societies.

See also: China: Sociocultural Aspects; Japan: Sociocultural Aspects; Korea: Sociocultural Aspects; Science and the State; Science Funding: Asia

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T. Inoguchi

Infrastructure: Social/Behavioral Research (Latin America)

The social sciences in Latin America present an array of manifestations, differing widely across disciplines and types of institution. There is also a great deal of variation in the nature of graduate and postgraduate training, research experience, and professional employment. At a time when significant developments take place in the international agenda of research methodology and interdisciplinary approaches, the regional intellectual map reveals great dynamism at

the same time that it unveils the presence of persistent vulnerability and stagnation.

1. Graduate Training

The Latin American tradition of tertiary studies opens the door to regulated professions after five years of study and, despite the fact that courses with nonprofessional titles have arisen in the various social fields, the association with university education historically has been quite clear. The social, legal, communication, and behavioral sciences are clearly in the majority (29.2 percent of enrolments). If we include in them economics and administration, their proportion rises to 41.3 percent. The group that results from adding together educational disciplines and the humanities represents 18 percent of the total enrolment which, added to the above-mentioned disciplines, gives a figure of 60 percent of higher-education student population devoted to sociocultural and educational disciplines.

The range of courses in the social field is not homogeneous either between countries in the region or within one and the same country. Within a motley and variegated picture of the social science field, the main systems producing the greatest numbers of graduates with first degrees are those of Mexico, Brazil, Argentina, Peru, Colombia, and Venezuela. The social and human sciences take the lion's share of enrolment in all higher-education systems, including those of Latin America, for the simple reason that professional activities requiring language proficiency and general knowledge about society and the contemporary world are much more numerous than those requiring specialized and technical knowledge. Adding all the disciplines related to the social field they total half a million graduates, or 62 percent of the total graduate population from higher education.

Two main groups of social science courses may be distinguished. The first one is oriented to the employment market (basically for people who already work or who seek a secondary-school position and/or general training). The second, much smaller, comprises the traditional more academically oriented disciplines.

1.1 Market-oriented Courses

Expansion of higher education, especially from the 1970s on, swelled the number of students in the social sciences and the humanities, who were recruited largely from those who had been unsuccessful in applying for more prestigious courses. Such students seek an ill-defined professionalization that the university is unable to supply in satisfactory measure, since it requires much more structured supervision than the university is prepared to offer. The majority