

The Spatio-Temporal Patterns of Personal Contact in the Office Sector: The Case of Seoul

—Research Proposal—

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No housewife or child can resist to burst into tears,
if they happen to find what the daily life of their
family head looks like, regardless of how powerful
or rich he is.

—Korean proverb—

Introduction

This research will examine the spatio-temporal pattern of office (“quarternary”) sector. When examining various activities in the office sector, information appears as key concept. Though much of the information can be readily transacted by telecommunication, the qualitative essential parts of it still require office workers to travel and to meet (or to make personal contact). This study is primarily concerned with personal contact. Special reference is made to Seoul, the capital city of Korea.

Retrospectively, the pattern is a product resulting from interaction between office workers’ intentional behavior and constraints surrounding office activities. The pattern apparently influences the locational decision of office activities over time which, in turn, shapes daily office activity patterns. I will focus my research on: (1) the activity patterns of office jobs in spatio-temporal terms, particularly in regard to personal contact, and (2) the impact of the patterns on the out-of-job daily life of office workers, especially with reference to their family togetherness.

This dissertation topic is related to several areas of research in urban and regional development. First, even if Korea today is not postindustrial, it is still true that in recent years office workers have become a growing sector of the urban labor force. This has raised questions as to how and in what ways office activities have been localized in urban space. The locational patterns of office jobs call for a deliberate discussion from such planning criteria as efficiency and equity.

Second, power relationships as hierarchically conceived among office sectors in the complex of urban external economies seem to be one of the important variables which greatly influence the location of office activities. Existing literatures on office location theory have not explicitly attempted to deal with the power relationships as a crucial location factor. Therefore, an understanding of office location behavior in this respect would contribute to the design and evaluation of office location policy. It will improve national urban policy aimed at the dispersal of office activities in big cities toward other growth centers, and policies aimed toward the spatial reorganization of major urban sectors centering around office stations within a metropolitan region.

Third, the quality of life within the urban labor force deserves major consideration from urban and regional planners. As regards office workers, the quality of their lives has

drawn scant attention because their wages have been comparatively high. This is an outgrowth of the simple and often false observation that income is a sufficient indicator of the quality of life. Contacts in which office workers are engaged primarily with other people and partly with facilities are space- and time-bound so that they might affect the quality of their daily lives. Accordingly, an alternative approach to the quality of office workers' daily lives in spatio-temporal terms is worthy of study. There is a need for research, since there is no previous adequate study on this subjects, especially with reference to a developing country like Korea.

The following section presents a definition of the problem, the hypotheses to test, and some background on the structure of the office sector in Seoul. Section 2 reviews the current literature related to the subject. Section 3 introduces a research model followed by critical assessments of urban time and space studies. Section 4 briefly discusses the proposed research design. Finally, Section 5 addresses application of the research findings to urban policy.

Section 1: Problem Background and the Hypotheses to Test

1. Office activities in Seoul

In Korea, as elsewhere, power relationships as observed in interactions between dominant and dependent organizations are held to be a crucial variable influencing the latter's locational decision and spatio-temporal activity patterns. As often seen in many developing nations, Seoul, the capital city of Korea, is indisputably the site of control of both private and public sectors. In recent years, moreover, rapid growth of the Korean national economy, primarily guided by central economic planning, has brought about the concomitant expansion of the management sector in the private economy.

It is not surprising to find that the ever-expanding management activity of the private sector has been concentrated at the core center of Seoul, the locus of the central government, where it can make full use of (1) "the ease of interorganizational face-to-face contacts"; (2) "the availability of specialized services"; and (3) "high inter-metropolitan accessibility," as usually found in the big cities of advanced nations. (Pred, 1977). It is argued here that power relationships can be an even stronger force in site selection in primate cities.

In the sense that the locational orientation of private office sectors seeks the three urban economies mentioned above, there is no obvious difference in their locational patterns

between developing and developed nations. To single out distinct features in the locational pattern of office sectors in the recent experience of Korea the first fact, that is, "the ease of interorganizational face-to-face contacts", should be more specified and elaborated than others. This observation is reinforced by the observation that there exist no headquarters of the nation's top 100 business firms even in Pusan the second largest city with 3,000,000 population, where specialized services are plentiful and interurban accessibility is quite high.

Still at the evolving stage of industrialization, the central government appears as a pivotal influence shaping the corporations' external environment. This manifests itself through (1) its own internalization of research; (2) elaboration of a bureaucratic organization on a larger scale and in greater complexity than any corporations; (3) its own extensive social, economic, or overseas policies; and (4) its own investment activity. (Hamilton, 1974)

Therefore, economic enterprises in today's Korea are extremely dependent on the central governmental bureaucracy, and such institutions as banking and financing firms are directly under the latter's control. This situation is referred to as an "asymmetrical power relationship"⁽¹⁾ between the two sectors. (Friedmann, 1975) The subordinate place of economic enterprises is borne out in the following relationships. First, it is the government with a dominating position allowed by state capitalism which awards contracts or acts as large-scale purchasers of goods and services from the private sectors.⁽²⁾ Second, the recent successful progress of the Korean economy is associated with an efficient mobilization of foreign capital. Major businesses as end users of this capital cannot make use of it without such government initiatives as negotiating foreign public loans and providing the foreign private sector with paycheck guarantees. Third, the manufacturing plants owned by big businesses heavily rely on major energy sources such as oil and coal produced or distributed by public corporations under the direct control of the government. Finally, the government is, explicitly or implicitly, involved in the decision making of businesses. For example, the amounts of goods exported by trading companies is controlled through export or import quotas. Several big businesses engaged in basic industry were recently forced into bankruptcy or nationalized, when their financial actions became an

(1) This is defined as "the ability of organizational and institutional actors, located in geographic space, to mobilize and allocate resources (manpower, capital, and information) and intentionally to structure the decision field of others (i.e., to constrain the decision of others by policies, rules, and commands)." Friedmann (1975:267).

(2) This action is named "implicit locational decision" by Pred (1977).

embarrassment to the government.

In the spatial context, the above-mentioned power relationship overwhelmingly influences the locational decisions of economic enterprises. They must gain direct and easy access to the various departments of the government and other power sources in the executive and military. On the other hand, the unequal power relationship also encourages interorganizational communication linkages on the part of business firms. They learn to depend on face-to-face contacts rather than speedier, but indirect contact by telecommunication.

Business environments change frequently and unpredictably: regulations are changed, ministries are reorganized, the relative costs and availability of production factors and financing shift suddenly. It is therefore often crucial to be at the centers of influence, decision, and information. The heavy bureaucratic maze of permits and licenses requires that papers be personally shepherded from one official's desk to another. This is partly because rules and procedures are often confused or even contradictory. Many an overbureaucratized machine needs to be lubricated by flattery, persistence, and great resources of persuasion, including bribery. (Alonso, 1968).

In addition, socio-technical and management variables contribute to the preference of personal contact to telecommunication: (1) telephones are much less dependable in a newly developing country while mail is slower and often fail to arrive. (2) Most messages and information which business firms receive from outside are less impersonal and standardized than in developed countries where contracts, terms of finance and details of payment and delivery, specification of the product, and a thousand other forms of contract tend to follow established forms. As a result, personal contact seems much more dependable to Korean business firms than telecommunication. Communications depend far more on word of mouth than any other means since a multitude of business procedures has yet to be standardized and, consequently, call for discussion and negotiation. And (3) personal relations enter frequently and pervasively into human contacts of all types more often than not. In developing countries like Korea, it is far more important to cultivate sources, to establish a commonality of attitudes or class positions. Information on new developments becomes available at irregular intervals, and channels must be kept open to be certain of being informed by influential office sectors. Since the information is unpredictable, often taking the form of rumors or confidential reportage, it is important to be in contact with many people and to see them even when no particular business is at hand.

2. Hypotheses to test

At the outset, this research defines the "office sector"⁽³⁾ as that set of activities engaged in the handling, processing and transmission of information. Within this sector is found the greater proportion of private and public decision-making activity, administrative of professional services, and research. For convenience, the research focuses upon office establishments (or firms) pursuing such activities at one particular location.

A number of hypotheses arise that appear both worthy of study and significant for urban planning decisions. It is observed in today's Seoul that office workers at less powerful business firms are often requested to come to the office of more powerful organizations on mutual business matters, even though these transactions might have been conducted by telephone in a more efficient way. However, this form of office behavior does not appear to bother those less influential business firms. Rather, they hold that their success in business activities is more likely to be dependent on a smooth and harmonious relationship with such external, powerful office organizations. In this context, the power of certain office firms within an office activity complex can be ascertained by observing the pattern of office work contact trips among firms. Usually those taking the initiative in making such personal contacts are employees of the less powerful firm.

The above discussion leads to a conceptualization of four hypotheses.

First, the more powerful an office firm, the more frequently it receives personal calls by the office workers representing less powerful office organizations.

Second, if less powerful office firms need a favorable response from more powerful office firms in any business matters, such contacts would be carried out personally rather than indirectly by telephone.

Third, when contact is prearranged, contact arrangements concerning the location, time-zone and duration of personal contacts are determined by the more powerful of the contact counterparts to his convenience.

Fourth, if contact arrangements could not be made in advance or necessity of contacts takes place with too short a notice to make an appointment, business office workers must be patient to wait for quite a long time until the contact time of powerful contact counterparts becomes available to them at most at the latter's office stations.

As suggested in the above, personal contact is of greater importance to business activity. An ultimate form of personal contact in compliance with the existing power relationships

(3) The definition of office sector to be utilized in this research is similar to that of the "quarternary sector" identified by Gottman (1970).

stands to develop into an "intimate relation".⁽⁴⁾ It might be facilitated by such socializing as dining and drinking together. It is observed in Seoul that many government office workers and business people rarely go home immediately after their regular office hours due to such after-hours socializing. As a result, their family life is disturbed.

The fifth hypothesis is: *If it is necessary to develop intimate relations by socializing, office workers are ready to extend their office hours beyond their regular 9-5 office hours.*

3. Problem statement in regard to policy considerations

As far as the office workers of private office establishments are concerned, the office activity pattern hypothesized above addresses two planning issues. First, it seems unlikely that they make efficient use of their business hours in conducting personal contacts, because they either tend to make personal contacts with no prior arrangement, or intend to drop in on their powerful contact counterparts with no apparent business objective. This behavior is subject to an evaluation from the standpoint of urban time-use.

Secondly, because of an asymmetrical power status among firms, office workers employed by less influential companies more often than not work beyond their regular office hours. They do so to keep their availability maximally at the convenience of their counterparts at power sectors. Therefore apparent disparities in urban time-use arise where the office workers daily lives are constrained by their contact counterparts. Frequent late home-coming may cause deterioration in the family life.

Section 2: Related Research on Office Activities

Attention to office activities in cities begins with location theory. The theory attributes location decisions of office activities to agglomeration and external economies abundant in the core area of big cities. However, deductive economic and geographical models offer little help in the explanation of the locational behaviors of the office industry. Traditional location theory is rooted in part on such concepts as the minimization of costs and the maximization of revenue output. These concepts seem to hold little application to the process and nature of office location decisions given the range of additional factors to be considered. It must be pointed out, however, that notions⁽⁵⁾ about agglomeration economies

(4) Following Alexander (1966), it is defined that "close contact between two individuals in which they reveal themselves in all their weakness, without fear." Two conditions which intimate contact requires: (1) the people concerned must see each other very often; and (2) they must see each other under informal conditions.

(5) Still, these notions are much more useful in understanding and helpful in interpreting the

and externalities, and central place theory provide valuable insights into the behavior of offices in a spatial context. They also confirm the many advantages resulting from the geographical clustering of office activities. The location decision of office activities might, however, be influenced by many factors of which only a few have been studied in any detail. "All the rest were assigned to a residual category which was labelled agglomeration factors, external economies, or whatever." (Tornqvist, 1977).

Under these circumstances, behavioral characteristics of office activities among other things have yet to be more fully elaborated. Business executives and other decision-makers are in reality only rational to a limited extent, as opposed to the assumptions of normative models of traditional location theory. Since they cannot be absolutely certain of reaching a profit maximizing decision at a reasonable cost and with moderate effort, the businessmen opt for a decision which at the moment is regarded as satisfactory, and would rather allow subsequent decisions to move to depend on the rule of locational inertia.

On the other hand, the study of contact patterns and linkages between firms (Goddard, 1975; Tornqvist, 1970) is focused to test to what extent spatial association between office activities is correlated with their functional ties. It has been demonstrated, almost exclusively with reference to advanced countries like Britain and Sweden, that spatial association is not a necessary condition for functional linkage.

Modern transport and communication technologies make economic and social propinquity less dependent on spatial propinquity than ever before. This observation has been modestly supported by the newly emerging suburbanization of office firms identifiable in a few metropolitan regions in advanced countries. But it cannot be predicted for certain that the suburbanization of office locations would turn out to be a dominant trend in metropolitan landscapes. That is, a majority of office firms in developed nations still remains in the central business districts of big cities, partly because increases in travel speed within most of the metropolitan settlements have been relatively modest as compared to the increasing speed of inter-metropolitan travel. The potentials of new highway system have been to a considerable extent restrained by the countereffects of congestion and the improvement in transit systems have been rate. Thus, peak-hour travel speeds have not increased considerably. (Webber, 1966).

Despite a small, though growing, body of evidence in support of the suburbanization of

inter-metropolitan area behavior of the industry rather than in clarifying intra-metropolitan location. (Manners, 1974; Richardson, 1972).

office locations, ambitious regional planners in such countries as Britain and Sweden dare to argue that the incidence of office suburbanization within metropolitan regions is applicable to the dispersal of office firms even in an interurban scale. They contend that a drastic reduction of distance friction made possible by modern transport and telecommunication leads to decentralization of office function and, accordingly, dispersal of office location to outlying growth centers.

Nonetheless, the achievement of such a policy objective is seldom realized and if it succeeds, takes enormous costs. (Bannon, 1973). The reason for this case is very clear. Communication linkages are not the only factor that influences office location. Other factors have to be taken into account. The cost of land, rent levels of office space, differential availability of labor and professional skills, unwillingness of staff to change location, prestige, tradition, inertia, ignorance, specific facilities needed, and the availability of other external contacts are significant considerations. (Wilmoth, 1974).

Transport and communication costs in monetary terms make a negligible contribution to office location decision at most. A case study on London reveals that on the average the direct cost of communications (i.e., telephones, postage, stationary, travel, but ignoring travel time) amounts to only 8 percent of operating costs, compared with 73 percent for staff salaries and 18 percent for accomodation. (Goddard, 1975). Nor are rent costs, since they just remain at less than 10 percent of total operating costs. (Manners, 1974).

The preceding discussions shed light on the rationale for why business establishments seem willing to suffer high costs of congestion in the dense central district of big cities. That is, face-to-face contact remains one of the most effective forms of business contacts. The probabilities of making chance face-to-face contacts are greatest where the density of people sharing similar interests is greatest. (Webber, 1964). Office establishments which rely on rapid access to accurate information have traditionally chosen to locate there primarily because information is received on a face-to-face basis. In all, business contacts need the saving of communication time as well as human contact in information handling.

As far as the saving of communication time is concerned, the substitution of telecommunications for transportation has drawn considerable attention from a range of concerned disciplines. Leapfrog development in communication technology has been expanding its subsitutability at an increasing rate. But the rate and degree to which electronics communications might substitute for personal travel are difficult to predict accurately. It depends not only on the economic trade-off between travel and communication costs but

also on: the psychological acceptability of a television presentation in place of face-to-face contacts; the loss of social amenities such as handshakes; and the possible loss of orientation and perspective caused when everyone from corporate president to file clerk appeared on the same screen. There would be no building with which to identify a man's image, no office to reflect his personality or position, and no possibility of being invited to lunch. Instead, he would be just another face on the same old screen. (Harkness, 1972)

What can be said under these circumstances is that telecommunication is selectively applicable to the contact economy of office activities, varying with the kinds of jobs which office firms are going to perform. An empirical survey (Goddard and Morris, 1976:47) suggests that telecommunication is more applicable to planning and programmed contacts than orientation contacts.⁽⁶⁾ In other words, it is face-to-face, not indirect contacts by telecommunication that could efficiently deal with subjective, non-routinized and unstandardized information.

Face-to-face contacts are greatly preferable in the following circumstances (Tornqvist, 1970): (1) when several people have to exchange information with one another at the same time; (2) when the exchange of information contains an element of uncertainty; (3) when it is difficult or impossible to foresee what situation will arise; (4) when the information given and received sparks off a chain of new situations demanding new exchanges of information; (5) when the contacts contain essential elements of problem-solving and intelligence work; and (6) when contacts are in the form of negotiations and discussions.

And personal contact patterns in the functional context are as follows:

- Frequency of meetings and their length are significantly related, with frequent contacts most likely to be short.
- Frequency of meeting and size of meeting are associated, small meetings being most frequent.
- Frequency and purpose are highly related; advice and general discussion being most frequent at occasional or first meetings, and giving/receiving orders and bargaining being most likely at daily meetings.

(6) According to Goddard and Morris (1976), programmed contacts are most likely to occur between two people who are in fairly regular and unarranged contact in order to discuss specific matters which involve few two-way exchanges. Like programmed processes, planning contacts involve familiar individuals in short but more wide range discussions. Orientation contacts are likely to occur in long contacts involving a large number of people and arranged a long time in advance in which wide ranging discussions with a lot of feedback occurs.

- There is a strong association between length of meeting and extent of pre-arrangement, and a positive correlation between size of meeting and pre-arrangement.
- Pre-arrangement and purpose are strongly associated, meetings arranged well in advance being more likely for general discussion, bargaining or exchange of information.
- The number of contacts increases with job and income level.

Nevertheless, study of the spatio-temporal aspects of personal contacts in an intra-urban scale has as yet to be undertaken. And, it is this from of investigation that this research purports to attempt.

Section 3: Research Model-Building

1. Critical viewpoints on urban time and space studies

Previously it was suggested that traditional location theory concerned with the emergence and relocation of urban activities including office sectors is not sufficient to understand the spatio-temporal pattern of office activities. Office location is usually decided upon by one or two high level decision makers in ultimate charge of the office. All office workers must adapt themselves to the activity radius and paths defined by (1) the office location decision made by the decision makers, (2) urban accessibility and utilities, and (3) existing urban structure as a whole.

Furthermore, the quality of life is not the substantive concern of location theory. This research will be about people, but not just about locations.⁽⁷⁾ Study of urban space should consider people and their activities, not just the presence of man-made structures.

In this respect, a "descriptive" study of the behavior of office workers appears promising as an alternative to the largely inappropriate existing normative theories of location. (Harvey, 1970). Generally it must be acknowledged, however, that the (descriptive) behavioral approach to urban activities is limited in deriving policy implication. It is difficult to determine whether observed spatial behavior of office workers is optimal for a given spatial structure. Even under these circumstances, they can be used as indicative guides to shape spatial structures in a more efficient and livable way, if more realistic patterns of spatial choices are found through behavioral studies. Disappointingly, few studies from the behavioral perspective exist of intraurban information flow.

(7) Human cause in urban studies is eloquently represented by Hagerstrand (1970).

Secondly, no study except for one recent publication⁽⁸⁾ has been made of the spatio-temporal context of information exchange by personal contact. If this kind of study were to be done it could provide significant clues to specify, among other things, employment multiplier effect of office jobs. From the development perspective, office jobs make use of urban agglomeration economies and, therefore, have more rigorous constraints in time-use and space-use than manufacturing jobs, Rigorous coupling constraints make around-the-clock multi-shift of office jobs scheduling hard to realize.

Urban activities like office work occur in a space-time continuum. No time had ever been utilized without also using it in some place. No place has ever been used without also using it some hours of the day. Space and time together form the container of urban activities. Several attempts have been made to deal with urban activities in both spatial and temporal contexts. A common practice in geography of collapsing the time dimension into space dimensions may simplify spatial analysis but as a result, ignore what Nystuen (1963) had called "space-time tension": "when time is short, space is conserved. When an activity has a deadline associated with it, congestion in space is likely."

Among existing theories, the space-time budget study appears to be most closely related to this present research effort concerned with the spatio-temporal aspects of office jobs. The space-time budget study is a logical extension of time-budget study carrying out a systematic record of a person's use of time over a given period. (Anderson, 1971). The latter describes the sequence, timing, and duration of the person's activities. The former includes the spatial coordinates of activity in addition. However, it does not provide any clue as to how an office worker might go about getting together with his contact counterparts, primarily because the space-time budget approach treats people in an atomized way. Furthermore, it says nothing about how and to what extent a contact would restrict his subsequent job schedule and, possibly, the rest of his daily life.⁽⁹⁾

(8) The study is based on "time-geographic model": Olander, Lars-Olof and T. Carlstein, "The Study of Activities in the Quarternary Sector," T. Carlstein, D. Parkes and N. Thrift (eds.), *Human Activity and Time Geography*, New York: John Wiley, 1978.

(9) The fact that undertaking of a job by the individual constrains his next jobs over the time-span of day, week or year draws appropriate attention from Hägerstrand and his fellow Lund study group. He summarizes some basic conditions affecting human life and, consequently, society. These are: (1) the indivisibility of the human being; (2) the limited length of each human life; (3) the limited ability of the human being; (4) the fact that every task (or activity) has a duration; (5) the fact that movement between points in space consumes time; (6) the limited packing capacity of space; (7) the limited outer size of terrestrial space; and (8) the fact that every situation is inevitably rooted in past situations. (Hägerstrand, 1975)

The drawbacks of the space-time budget study mentioned above are resolved particularly in the time-geographic studies by Hägerstrand and his fellow researchers. (Carlstein et al, 1978; Pred, 1977). The perspective seems instrumental in revealing the quality of life in regard to urban activities. (Hägerstrand, 1974). Major concepts from this perspective will be introduced later in a discussion of a research model for this study.

2. General framework of analysis

The behavioral approach this study will adopt is concerned with how individuals adapt spatially and temporally to the existing set of constraints in order to satisfy their preferences in the short run. In this model, the influence of spatial structure on spatial behavior is more important than the converse. The reasons are: (1) the central business district is rarely a direct response to the types of activity patterns currently displayed by office workers for historical, institutional and other reasons; (2) it takes a long time, say, several decades for spatial structure to change. Therefore, rather than emphasizing their formative influence upon spatial structure, it may be more useful to study how activity patterns are themselves shaped by existing environments. In the long run, however, the study can be used to guide the fundamental and continuing task of planning aimed at making urban structures better fitted to the activity patterns of office workers.

The conceptual framework of this research paradigm presupposes patterns of behavior resulting from the subjective decision-making of office workers on one hand, and a particular set of constraints on the other. The intentional behavior and the constraints then interact to bring about a culturally transmitted spatio-temporal pattern of office activities.⁽¹⁰⁾ (Shapcott and Steadman, 1978).

As implied in the above discussion, a research model (Figure 1) can be derived for this research investigation. An elaboration is made as follows.

(a) Intentional behavior: opportunity seeking

Individual spatio-temporal behavior seeks opportunities regardless of the set of constraints faced by the individual. (Cox, 1974). The following intentional behaviors observed in office workers appear worthy of note:

- (1) behavior to maximize the reliability of business information, and to attempt to gain

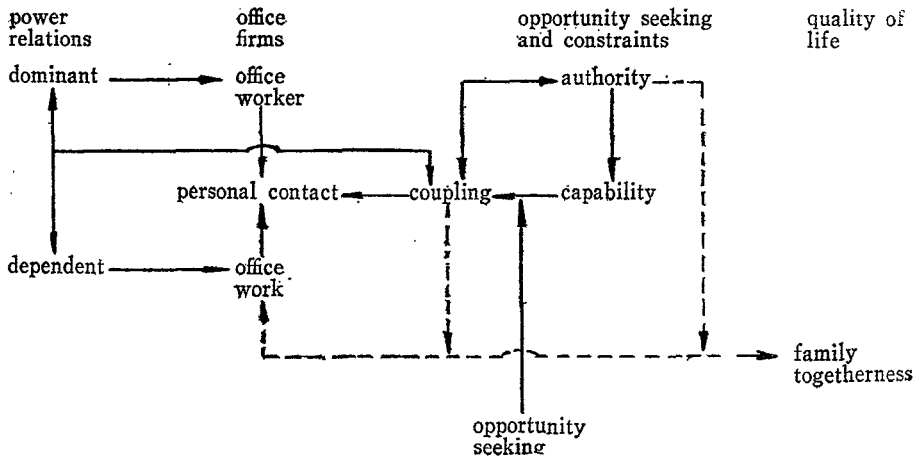
(10) The cultural patterns of office activities can be alluded to as "world three" of "objective knowledge" by Popper (1972). The "world three" of a cultural product results from the interaction between the subjective "world two" of minds and the "world one" of material objects and physical environment. It, once produced, acquires a certain autonomy and a degree of relative independence from the thoughts and actions of individuals.

- the immediate feedback of information handling; and
- (2) habitual choice behavior where behavioral inertia persists. In so far as personal contact is proved as a reliable means to get dependable and immediate information and as being effective in negotiation by past experiences, office workers are unlikely to change the present communication channel to other modes of information handling.

(b) Constraints

Location choices in the real world are made with respect to a particular configuration of constraints. Hägerstrand's time-geographic perspective provides a substantial base for the discussion of the constraints which office workers experience in their daily life. On the premise that every human activity is time-and space-consuming, Hägerstrand's framework

Fig. 1. A Research Model*



* Solid line represents on-the-job daily lives of office workers, and dotted line represents their off-the-job daily lives.

is concerned with how each individual satisfies needs and wants. Each individual uses his time resources over space while participating in production, consumption, and social and family activities.

As such, office workers conduct their jobs while stopping at their home office stations or moving to other functionally related office stations over given time (Fig. 2). But, office workers' freedom to move from station to station, or from one desired activity to another, is often limited by many constrictions. Time-geographic model can be brought to systematically describe or visualize various constraints imposed on activity choices open to office workers. Three constraints are identified as worthy of consideration: capability constraints, authority constraints, and coupling constraints.

Capability constraints

Capability constraints limit the individual through both her biological needs (i.e., sleeping and food), and the tools and technology (i.e., transport and communication conveniences) she can command. Their spatio-temporal boundary would be limited to the extent that office workers experience capability constraints.

Coupling constraints

Coupling constraints refer to where, when, and for how long the individual must join other individuals (or objects) in order to form production, consumption, social and miscellaneous activity bundles. As indicated before, this study is primarily concerned with coupling constraints experienced in personal contacts between office workers. Office workers' daily job paths for personal contact must coincide in space and time during meetings. As a result, the participating office workers in the meetings become inaccessible, both to other activities, and other people and locations. Time-geographic models enable the coupling constraints to be visualized as in Fig. 2 and 3.

Authority constraints

Authority constraints address themselves to limitations on the action possibilities within time-space domains through general rules, laws, economic barriers, and power relationships. These determine who does or does not have access to specific times to do specific things.⁽¹¹⁾ (Pred, 1977). For instance, the government sectors formally regulate the private industries and firms in such state-capitalistic countries as Korea. Correspondingly, this fact leads to the dependency of the private sectors on the authority of the public sectors in the former's daily office activities, as hypothesized earlier.

Section 4: Research Design

1. Research agenda

Answering the following questions is pertinent to testing the hypotheses spelled out earlier.

- a. What is the functional linkage patterns of each study firm with outside organizations?
—The first job of this research is to find the functional communication linkages of the office firms being studied with external office sectors. Major external office sectors with

(11) Taking an example for the case, the curfew hour system, which the central government of Korea has been for long imposing on the general public, puts restriction on the spatio-temporal boundary of their daily lives.

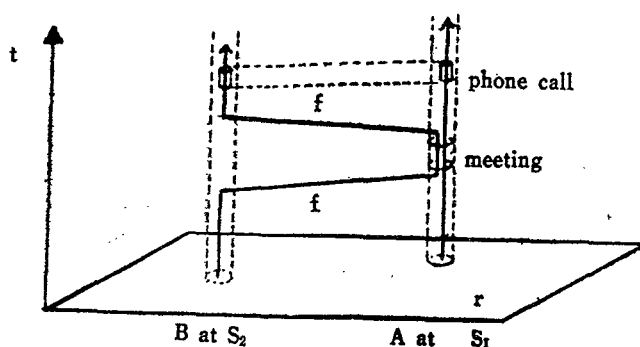


Fig. 2. Some basic concepts of Hägerstrand's time-geographic model. r represents an area, and t designates time. An office worker (B) describes a path consisting of visits at "stations" (S_1 and S_2) which are the home office buildings of A and B, respectively, and movements (f) between them. f represents capability constraints in that the office worker uses a certain amount of time to overcome the distance between S_1 and S_2 by transport modes available to them. "Meeting" and "Phone call" indicate coupling constraints. After Hägerstrand (1970:14).

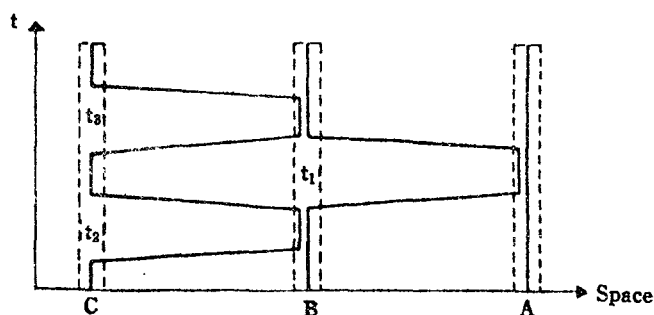


Fig. 3. If individual A is a senior government bureaucrat, for instance, and B as a private firm's office worker to see him, B in turn becomes inaccessible to C (say, B's subcontractor) during that time plus the time for travel (t_1). C then adapts the time of his meeting with B around t_2 and t_3 . After Carlstein et al(1978:207).

which the study firms are presumed to be associated are: the central and local governments; private business firms either competitive or complementary; specialized socio-economic institutions such as banks and trader's associations; and professional consulting firms.

b. For what purpose do face-to-face contacts take place?

—Specific kinds of tasks performed by personal contacts will be identified.

c. When and how long does each of the personal contacts occur?

—The time-zone where personal contacts take place is related to the quality of office

workers' lives. The duration of personal contact might disturb their regular office hours. Time consumption for trip making, contact proper, and queuing to see contact counterparts will be examined. Though it must be specified in further detail, it might be assumed that higher-ranking office workers take less queuing time in seeing their counterparts even in circumstances where the contact is not arranged in advance.

d. How are face-to-face contacts arranged?

—In line with Korean custom personal contacts with no prior arrangement might be attempted more often than not, partly because of a traditional custom that considers a phone call to a senior or powerful counterpart as being impolite.

e. How is accessibility furnished?

—Transport means for personal contacts will be revealed.

f. To what extent can face-to-face contacts be satisfactorily substituted by telephone or other electronic telecommunication systems?

—The substitution of telecommunication for transport is increasingly possible in the technological sense. Psychological response to the widespread use of telecommunication in the present and future will be questioned.

2. Survey tools

Testing of the hypotheses and visual presentation of the spatio-temporal behavior of the office sector under this study will be furnished by two survey tools: contact diaries and questionnaires. A major portion of the survey will depend on the contact diary, which has been proven as a valid means to survey communication linkages in previous research.

(Tornqvist, 1970; Goddard, 1973; Cullen and Phelps, 1975)

Contact diaries can provide the following information: (1) daily frequencies of external personal contact; (2) overall time consumption, and trip and queuing time for personal contact; (3) time-zone and place of personal contact; (4) job categories and ranks of contact office workers; (5) means for the arrangement of personal contact; (6) business purposes for personal contact; (7) number of counterparts at each contact; and (8) trip modes for personal contact.

As normally used for behavioral study, questionnaire survey will be adopted to identify the attitude of office workers in regard to their office jobs in general and daily schedule. The survey will be designed to provide: (1) what the contact diary fails to furnish, and (2) clues indicative of verbal qualitative interpretations of the diary.

3. Data collection

(a) The place of data collection

This research will be focused on "general trading company" as the place of data collection, because all employees are involved in office-based administrative jobs. The company is commissioned and licensed by the central government to accelerate the export drive and increase the competitiveness of domestic industries in foreign markets. The general trading company is primarily concerned with export business. The government, in turn, provides the company with preferential incentives in tax, finance, and domestic market shares. In fact, the company is multi-plant, multi-regional and multi-national. The company is a parent company of several subsidiary firms and plants located in various parts of the country, and has a minimum of 15 overseas branch offices as required for a qualification as a general trading company by the government. As of this date, there are 13 general trading companies.

Significant characteristics of the company address the importance and validity of this research. From the standpoint of economy, the booming economy of Korea is greatly owing to its export economy, of which the share amounts to about 40 percent of her GNP in the last year. Thirty-six percent of the total export was carried out by the trading companies in 1977.

From the viewpoint of employment, the expanding number of office workers in today's Seoul has been much attributed to flourishing job opportunities created by general trading companies. These new office jobs are most attractive, because of higher salaries and desirable fringe benefits, to both college graduates as well as white collar workers wishing to change their future careers from such seemingly slow-to-expand organizations as banks, government bureaucracy, university and press.

In terms of urban systems, office buildings housing the general trading companies and urban services functionally related to them organize the distinct landscapes of downtown Seoul. All the office buildings owned by the companies remain within a radius of one half mile from the civic center. And, trip generation for business purposes amounts to 61.4 per cent of total daily intra-urban trips by gainfully employed persons (excluding trip generations by students and housewives.)⁽¹²⁾ (KIST, 1978)

(b) Sampling of data sources

Out of 13, one or two general trading companies will be chosen for the convenience of data collection. The sample size of data sources would amount to 200—300 office workers

(12) Economic Planning Board, *Korea Job Classification Manual*, Republic of Korea, 1974.

in total. The sample is also stratified according to the two dimensional classification system for salaried employees, where horizontal classification is according to the type of work or function and vertical classification⁽¹³⁾ depends on the total demands of the job or the degree of difficulty.

Data collection will be limited to external contacts. Contacts within the same office firms will not be included in the investigation. In all cases the investigation period for the contact diary survey would be one week usually the period Wednesday through Friday.

(c) Analysis

I will compile descriptive statistics from the data collected in the course of the contact diary and questionnaire surveys and use this information to test the hypotheses spelled out earlier. Primarily, I will be looking for indications of distributions which either validate or invalidate the 95 percent confidence interval. It may be alternatively lowered to a certain extent on the grounds that this research addresses not so much a rigorous evaluation of social theory as a suggestion of policy implications⁽¹⁴⁾

Section 5: Policy Analysis

Office activities suddenly became a crucial subject for Korean policy studies, immediately after the central government announced a dramatic decision on the establishment of a new capital city in 1976. It was known that the decision aimed at balanced spatial development and stability in domestic geo-politics. That the office activities of the central government administration would be moved to the new capital city now under design has recently been announced. They go to a site about 100 miles south of Seoul.

The government plans do not include corporation headquarters in the move, however. This planning decision has caused the Seoul municipal government to worry about possible shrinkages of the urban economy's efficiency due primarily to the prospective spatial separation of the close functional connectivity of private activities with the central government. Since an understanding does not exist as to what the contact costs and structures of Seoul look like, urban planners cannot be sure of their predictions on how and to what extent the office activities or corporation headquarters may or may not be affected by the

(13) Disproportional stratified sampling will be applied to make meaningful comparisons between a fewer population of high-ranking office workers and a larger population of low-ranking office workers in the pyramid-shaped structure of an organization.

(14) There is a considerable concern with the distinction between statistical significance and substantive significance in evaluation researches of social problems. Berk and Rossi (1977).

move of the government.

Under these circumstances, first of all, this research can fill in the above-mentioned information gap. Second, the understanding of office activities in the spatial and temporal context within the Seoul metropolitan region can be used to plan its internal urban structure so as to fit the activity patterns of office workers in the coming era of a post-industrial society and a sharing of administrative functions. Third, if validated as hypothesized, the crucial power relationship between the public and private office activities will be introduced as a planning concept that is valid for the design of the new capital city.

Otherwise, if Seoul continues into the future as it is and the new capital city does not go ahead, the findings of this research will reveal the effectiveness of location of business firms in terms of personal contact generated. Also, evaluation on the quality of office workers' lives will be taken into account a part of a growing awareness of social policy issues.

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