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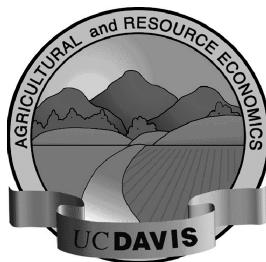
Continuity and Change in China's Rural Periodic Markets

by

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Continuity and Change in China's Rural Periodic Markets

In his famous *Journal of Asian Studies* article, William Skinner described China's traditional rural marketing system.¹ The typical market, in which farmers bought or sold their wares, was periodic, meeting from once out of every ten days in remote areas up to every other day in the busiest places. Every periodic market town was the center of a social unit that Skinner termed the standard market area. Each standard market town also was part of a hierarchical system, linking up with intermediate market towns, which, in turn, linked up with central market towns. These higher-level markets served central place functions for the markets below them--bulking and shipping out goods coming from below and breaking up and distributing goods coming from above. The key reason for the existence of a periodic system was the low density of demand. Meeting periodically concentrated the demand of low-income farm households living in areas served by only crude methods of transport. Markets spaced themselves densely enough across the landscape to enable most villagers to manage the trip to market within a reasonable amount of time.

Even during traditional times the rural market system was dynamic, experiencing a process of intensification. Rising density of demand and commercialization led to increased volume of trade at existing markets. Increased levels of trade pushed market officials initially to increase the frequency of meetings at existing ones--for example, instead of twice per *xun* (ten-day period) a market could start meeting four times per *xun*--and subsequently to create new market sites.

The pressures that trigger intensification in traditional economies, however, are theoretically counterbalanced by other forces as arise when an economy begins to modernize that should begin to undermine the usefulness of rural periodic markets (henceforth, markets or periodic markets). Improved roads within the intermediate marketing systems reduce the friction of distance at the local level, raising the effective density of demand to a level that can begin to support permanent stores. Urbanization and other developments lead to the creation of a modern trading system, which will signal the end of traditional periodic marketing. This process of decline should begin in the most developed core metropolitan areas, and could proceed even while rotating markets continue to expand for some time in the more outward regions. With the greatly accelerated pace of national development and

¹ William G. Skinner, "Marketing and Social Structure in Rural China", *Journal of Asian Studies* No. 24 (1964), pp. 3-42; 195-228; 363-399.

modernization of the transport system during the reform period, some have even predicted an end to periodic markets by the end of the century.²

Can we find traditional periodic markets in the milieu of market activity that abounds in contemporary China today? As reform is transforming the rural economy, is periodic markets activity being intensified or undermined? What factors account for the evolution of China's rural markets?

The goal of this paper is to provide answers to some of these questions. In one sense, the study seeks to add to Skinner's seminal work by analyzing a set of primary data collected by the authors on periodic markets in today's rural China. The paper subjects a number of Skinner's predictions to quantitative testing, and updates his theory to account for institutional peculiarities in the contemporary period. In another sense, however, our study stands on its own. We make an inquiry into the characteristics of rural market emergence in contemporary China, seeking to untangle the determinants of the rise and decline of market activity.

Based in part on a unique set of primary data from a nearly national representative sample of villages that we collected in 1996, the scope of this inquiry into the nature of periodic markets is necessarily limited by the nature of the survey.³ The enumeration group, a team of social scientists from Beijing, asked the respondents, three leaders from each sampled village, to provide information based on their best judgment about the timing, size, composition, and structure of the markets (at that time, 1995, and in the past, especially 1988 and 1980) most frequently attended by people in their own villages. The survey design chose prefectures, counties, townships, and villages randomly, using a comprehensive sampling frame stratified on the basis of gross value of industrial output, a variable shown by Rozelle and others to account for large differences in regional development.⁴ In each of the

² William G. Skinner, "Rural Marketing in China: Repression and Revival", *China Quarterly*, No. 103 (1985), pp. 393-413.

³ The sample needs to be classified as "nearly" representative for several reasons. First, there are no sample villages from "South China" (*huanan*). The original sampling frame included Guangdong province; the demands by village leaders for payment for their time were so high, however, that financial considerations led to a decision to drop these villages from the sample and replace them with villages from Shandong, another coastal province. If villages were more than four hours from the township by car, the enumerators were authorized to select a replacement village in the same township; every effort was made to select a replacement village that was similar in nature (especially with regards to its level of industrialization—usually non-existent in most cases) to the dropped one. Only three villages in the sample were exchanged for this reason. Most of the 31 sample villages in Hebei and Liaoning were selected randomly, but used slightly different criteria since they correspond to the same villages surveyed by Loren Brandt, University of Toronto, and Rozelle in a 1995 investigation of six Mantetsu villages in the two provinces. Dwindling budgets induced the authors to reduce the sample size (to 24 villages) in Yunnan Province, a province with the highest survey costs in terms of money and time.

⁴ Scott Rozelle, "Stagnation without Equity: Patterns of Growth and Inequality in China's Rural Economy", *China Journal*, No. 35 (January 1994), pp. 63-96.

eight representative provinces (see tables for list of provinces), our enumeration team surveyed four villages in each of eight counties, a total of 32 villages per province. Unfortunately, the sample frame makes it impossible to comprehensively study the geography, horizontal and vertical linkages, or other spatial aspects of periodic markets (e.g., subjects such as those examined in depth in Skinner).⁵ This study also focuses exclusively on lower-level markets in rural areas. Discussions of higher-level markets (which, in current China, mostly are located in areas defined as urban, and hence were not sample) and spatial issues are deferred to later work. We also are limiting our analysis to examining periodic market activity and the trade-off with permanent stores, the main alternative marketing institution identified by Skinner, and ignore the other new institutions of exchange appearing in rural China, such as door-to-door salespersons, wholesale markets, and commercialized state trading.

Ties to the Past

Traditional Markets

Colorful and robust marketing activity, organized into intricate spatial and temporal patterns, defined an important part of China's economic past.⁶ Social scientists have traced the evolution of periodic markets from imperial times through the early Communist era.⁷ Their observations documented the multitude of goods and services bought and sold on the days that the market convened in a given area: grains, fruits and vegetables, eggs, meat, fish, herbal medicines, textiles, and shoes appeared in most markets.⁸ Specialized purchases, such as, bulk fertilizer, tools, timber, rat poison, piglets, donkeys, and the next year's seeds, could be made in many markets. Sales of exotic items -- monkeys, fireworks, coffins, reading and writing assistance, geomancer services for determining *fengshui*, for example -- also caught the attention of some early observers. Indeed, markets had so proliferated by late Imperial and Republican times that almost everyone in China except those in the most remote regions had relatively easy access to this traditional marketing institution.⁹ For example, Spencer estimated that in the 1930s in Sichuan province, throughout the year, one in two families were represented by at least one member at every marketing session.¹⁰

⁵ William G. Skinner, "Marketing and Social Structure ...", pp. 21 to 32; 196-204.

⁶ Fei Hsiao-Tung and Chang Chih-I, *Earthbound China: A Study of Rural Economy in Yunnan*, London: Routledge & Kegan Paul Ltd (1948).

⁷ Dwight Perkins, *Agricultural Development in China, 1368-1968*, Chicago: Aldine Publishing Company (1969).

⁸ J. E. Spencer, "The Szechuan Village Fair", *Economic Geography*, Vol. 16 (No. 1 1940), pp. 48-58; and Martin C. Yang, *A Chinese Village: Taitou, Shantung Province*, New York: Columbia University Press, (1945).

⁹ William G. Skinner, "Marketing and Social Structure ...", p. 6.

¹⁰ J. E. Spencer. "The Szechuan Village Fair", pp. 48-58.

Despite the chaos that reigned during peak market times, the organization of markets followed a logical pattern. The regularity of the meeting times that are fixed to the lunar calendar is the best known characteristic (see introduction). Different types of economic activity also gravitated towards different types of markets.¹¹ Traders in intermediate markets engaged primarily in wholesale activities, whereas buyers and sellers in standard markets were focused mostly on retail and petty trade. Wholesalers, often non-locals, specialized in supplying traders with their wares as well as in purchasing goods collected by them. At standard markets, farmers surfaced from the countryside to sell their crops or household handicrafts.¹² Local traders sold their wares and purchased farmers' goods for later disposal at the intermediate market.

Earlier observers had less to say about the origins and management of markets, most likely because most markets required little state intervention. Skinner mainly speaks in a passive voice when describing how periodic markets came into being, while most other observers do not raise the issue. In terms of on-going management, Skinner indicates that lower markets were mostly “self-regulating and self-taxed.”¹³ Others also have noted the laissez faire nature of traditional markets, pointing out that officials typically did not participate in the layout of the market, at most entrusting management to merchants, and were unable to tax most of the buyers and sellers.¹⁴ Skinner, however, does describe how “authorities” sometimes encouraged an increase in market periodicity, and had an incentive, especially in higher level markets, to register and tax marketers, the commission fees reverting to those with the power to claim them.¹⁵

Markets Today

Visitors to market towns in China today cannot fail to catch many glimpses of what appear to be traditional marketing systems.¹⁶ On one day, a township's hard-clay plaza, surrounded by rows of stalls with tattered tin roofs, lies bare and empty, disturbed only by loud, single-piston tractors and bands of scavenging dogs. On the next, the market day, the center of town explodes into life. Pre-dawn brings trickles of buyers and sellers into the market place. By early light, restaurateurs have lit fires, and hawkers have spread out their wares. Trucks

¹¹ Ibid, pp. 48-58; and William G. Skinner, “Marketing and Social Structure ...”

¹² Martin C. Yang, *A Chinese Village: Taitou ...*

¹³ William G. Skinner, “Marketing and Social Structure ...”, p. 31.

¹⁴ Susan Mann, *Local Merchants and the Chinese Bureaucracy, 1750-1950*, Stanford: Stanford University Press (1988); J. E. Spencer, “The Szechuan Village Fair”; and, Xiaotong Fei and Chih-I Chang, *Earthbound China: A Study of ...*

¹⁵ William G. Skinner, “Marketing and Social Structure ...”, pp. 16 and 37.

¹⁶ The following observations were made during field visits made by the authors before and during data collection.

and trailers stream off the highway and carts and donkeys emerge out of the hills. By mid-morning teaming crowds, in a bargaining frenzy, fill the central marketplace and spill out into every lane and bare patch of land. Roads become clogged and traffic frequently cannot pass until late afternoon and evening have sent the buyers back home and the mobile merchants to their next destination.

In markets throughout China sellers have every imaginable product for sale, and buyers squeeze from stand to stand looking for the best deals, visiting different corners of the market to purchase different goods. Grain sacks are piled high. Livestock low as they stand passively, awaiting their fate. Dentists advertise their skills with the dentures of their previous clients. As in pre-Communist times, there is zoning of similar products, even without the guidance of local cadres; markets-within-markets spring up at the same times in the same places on each marketing day.

In today's rural countryside, different markets often serve different functions, and our survey found that farm households in most villages frequently attend at least two distinct markets. They travel most often to the *primary* market, mainly to buy grain, vegetables, and other food products (Table 1, row 1). Farm families also stock up on small manufactured items such as tooth brushes and tooth paste, paper products, small mirrors, hair brushes, body soap, and other daily use items (row 2). Farmers clearly use their most frequented markets to service their most basic consumer needs.

Most respondents told us that their villagers also travel to more distant and more specialized markets to conduct larger transactions of a different nature. The average distance to the *secondary* market exceeds that of the primary one by 54 percent (8.5 kilometers versus 5.5). Farmers reported that they attend secondary markets mostly to sell their harvests and other home-produced goods or to buy specialized products, such as construction material, farm inputs, or materials needed for home businesses and handicraft production (Table 1, row 3). Only in Shandong was there not much difference between the reasons for attending each of the markets. Villagers in most of our sampled communities have a clear distinction in their minds that these two markets serve different purposes.

Primary and secondary markets also differ in the composition of origin of the main buyers and sellers (Table 1, rows 5 and 6). In secondary, wholesale-type markets, more buyers and sellers come from further away. In contrast, local buyers and sellers dominate trade in primary, more retail-type markets. Even in areas where there is a

higher share of non-local buyers or sellers (such as Shandong, Hebei or Yunnan), the participation of local merchants generally is greatest in the primary markets.

While interviews with local officials in both villages and townships (and higher jurisdictions) make clear that officials certainly are aware of these markets, it is just as clear that market activity arises and evolves without their direct involvement. In many markets, especially primary ones in more remote areas, the most common response to questions about who runs or manages them is “no one!” In the early dawn hours, just watching the arriving sellers reveals the predominance of self-organization. Hawkers try to move in on the best locations. Arguments and minor scuffles sometimes break out between old established sellers and newcomers over trading rights and prime locations. One old Hubei trader of rat poison, cockroach spray, and mosquito coils, a non-local who has attended the circuit through far-flung markets of northern Shaanxi for the past ten years, explained his relationship with the authorities most concisely: “Get there early, dig your table in, light your breakfast fire, pay your fee, sell your goods, pick up your trash, and get ready for a quick getaway – there is always another market tomorrow.”

Officials do take an active role in some markets, however. In some areas they claim to have initiated new markets. In almost all areas they attempt to collect some sort of tax or fee from sellers. During interviews, township officials in a number of locations discussed their successes and failures in starting up markets, especially more specialized, intermediate markets. In northern Jiangsu, an area where farmers traditionally have been involved in tree nursery activities, a local official invested township funds in a canopied outdoor marketing area. As a result, one of the largest seedling markets in the province emerged, meeting two times per *xun*, and thus synchronized with the other markets around the region. Village and township leaders also have invested local funds to widen streets, set aside plazas, and construct marketing facilities in an effort to attract sellers so as to provide local residents with more convenient sources of goods and services, and to attain the increased status that comes with greater economic activity.

Leaders in most areas levy some kind of fee on sellers, even though interviews with both sides of the transaction revealed that taxing the itinerant peddler is not an easy task. According to national tax laws, all transactions are subject to the nation’s value-added tax. Sellers should pay to the local tax authority a percentage of the mark-up they charge. Difficulties in monitoring and enforcement, however, make it impossible for authorities

to collect such a tax. Instead, most localities have designated officials in the township commercial management station (*gongshang guanli zhan*) to assess each seller a fixed fee—sometimes based on the size of the area occupied or facilities used. In many areas, county tax authorities split the revenue from the “stall tax” with the township or village. Some social scientists have observed the size of the total take and remarked on the large benefits to the state; however, given the magnitude of marketing activity and volume of transactions, the tax on the average buyer’s total transactions during a visit on any given market day in China is minimal—perhaps less than 0.50 yuan per market visit.¹⁷

Similarities—Past and Present

Periodic schedules, product organization, specialized sales corps and buyers, and the ways in which markets are managed and taxed make today’s rural markets appear much like those observed by social scientists and earlier historians studying China’s pre-1949 economy. Contemporary secondary markets appear to serve many of the same wholesale functions as intermediate markets before 1949 and appear to be in a hierarchical relationship with the primary markets in our survey. Local, retail-oriented, primary markets also closely resemble pre-1949 standard markets. While it may not be surprising that many of the characteristics of the traditional market system still survive, the issue is of particular interest because, according to Skinner and Solinger, Maoist authorities were particularly determined to destroy the vertical exchange component of traditional rural markets, replacing the higher-level markets with their own supply and marketing cooperatives.¹⁸

The year of establishment for many of these markets leaves no doubt, however, that these are the continuation of the traditional rural markets. In all of the sampled provinces, leaders and farmers reported that a large number of periodic markets were established before 1949 (Table 2, row 1).¹⁹ Across the all-China sample, respondents identified over 80 percent of the markets as originating prior to 1949. In some areas, the proportion is much

¹⁷ According to Kate Xiao Zhou, *How Farmers Changed China: Power to the People*, Boulder, CO: Westview Press (1996), an official in a national conference on periodic market activity in 1990 (most likely sponsored by the Ministry of Domestic Trade), tax revenues for the years 1980 to 1990 equaled 20 billion yuan. If there were an average of 50,000 markets in rural China during this period (as reported in official statistics), and if these markets met on an average of 100 times per year (a conservative estimate based on our sample’s average), then the average tax attributed to each of the average of 5000+ people who attended each market would be 0.80 yuan per customer per visit. It is also likely that a large part of the 20 billion yuan was collected from urban periodic markets, however, leaving the total tax attributable to each customer visit at less than 0.50 yuan.

¹⁸ William G. Skinner, “Rural Marketing in China: Repression ...”; and Dorothy Solinger, *Chinese Business Under Socialism*, Berkeley: University of California Press (1984).

¹⁹ The fact that a market was established before 1949 does not mean that the markets were continuously in operation during the Socialist period. The reestablishment of markets is discussed later in the text.

higher. In Sichuan Province, for example, leaders reported that *all* markets began long before liberation. Even in the provinces with the lowest proportion of markets, Hebei and Liaoning, 56 percent of periodic markets predated liberation.

How old are these markets? In many cases, villagers did not know when they actually started. In others, collective memory clearly identified the time when exchange first arose. In one Shandong village, for example, the village leader scolded the interviewers for having bad manners when they showed disbelief at what turned out to be a serious answer. Asked when the market was founded, the leader proudly responded, "Song," meaning that the market convening in his township was the same one that met during the Song Dynasty (907 - 1277 AD).

A Model of Rural Periodic Market Development

Given that these are traditional periodic markets, what should we expect in terms of their pattern of development? Are markets developing over time during the reforms and emerging spatially in the same way that markets developed in traditional times? What is the future of China's periodic markets? In this section we briefly review and clarify the model of market development proposed by Skinner in his 1964 JAS article. In the following two sections we then provide an empirical analysis of market development in China today based in part on testing the hypothesis that markets today are developing in ways predicted by Skinner.

This review of Skinner's model makes several assumptions about of his 1964 article. While Skinner speaks of two distinct processes by which rural markets appear and disappear—"intensification" and "modernization"—we will assume that he was describing two phases of a single continuum that we call "Rural Periodic Market Development."²⁰ In fact, a number of illustrations in his writings support such a view, since the same location first passes through an intensification phase before entering the modernization phase.²¹

Intensification

²⁰ William G. Skinner, "Marketing and Social Structure ...", pp. 195-211 and 211-228.

²¹ For example, the discussion of markets in the Ningbo area of Zhejiang in William G. Skinner, "Marketing and Social Structure ...", pp. 209-211 and 215-216. Skinner's work also allows us to make statements about the intertemporal dynamics of market change from observations that vary across space (pp. 200-202), a property that we will exploit, but not only rely on to justify our conclusions, since we have time series observations in addition to a rich cross section.

Skinner clearly describes the process of market emergence in traditional China.²² Initially there was increased activity in existing marketing sites. Subsequently, the number of market days began to proliferate, first due to increased periodicity and then due to the addition of new markets. Empirically, during the intensification phase of market development, we would expect to see periodicity increase in poor, more remote areas, and new markets emerge in better-off areas (given that transportation infrastructure and geography are held constant—as they are in Skinner’s traditional China paradigm, in which transportation is generally poor).²³ In traditional China, the rise in the density of demand drove increases in periodic markets, a force that could have occurred in several ways. Expanding populations underlie most of the growth of markets.²⁴ When more people move into an area or when populations increase from rising fertility, the collective spending power of the rural economy can support larger and more concentrated markets. Increasing incomes also can increase the demand of a static population base (a point that can be derived from basic demand analysis and one at which Skinner hints but spends little time analyzing, since he does not believe there was significant per capita income growth during the traditional period).²⁵ Skinner also states that specialization and rising agricultural productivity affect market intensification, but these are not so much causal factors as they are activities that arise simultaneously with markets, the result of many of the same demand-increasing factors that give rise to markets themselves.²⁶ Ultimately, Skinner’s theory predicts that changes in population and income (and any other variables that increase commercialization) should be positively related to market activity.

Modernization

Market development in the period of early modernization exhibits many of the same characteristics of the development process during traditional times. Of the four indicators of modern market emergence—increases in market activity, rises in the number of market days per period, increases in the proportion of activity in permanent stores, and expanding specialization — all but the third also occur as demand rises in traditional economies.²⁷ In other words, increasing demand density due to population and income also serves to encourage market emergence in

²² Ibid, p. 209.

²³ Ibid, p. 11.

²⁴ Ibid, pp. 9, 11, 33, 196, etc.

²⁵ Ibid, pp. 10, 11 and 196.

²⁶ Ibid, pp. 209 and 198.

²⁷ Ibid, p. 212.

early phases of a modern economy just as it does during the traditional intensification process.²⁸ Hence, any indicator that captures elements of marketization should be positively related to population and income.

The rise of modern transport, however, differentiates the contemporary period from the traditional one, driving the pattern of modern market development described by Skinner.²⁹ Besides disappearing markets (especially standard ones) and expanding marketing areas (on which, unfortunately spatial information is not available from our survey), rising levels of transport infrastructure should lead to falling periodic market activity (assuming the unobserved level of marketing activity in permanent stores in the new marketing center is not increasing even faster than the measured level of market activity). Gains in transport and other infrastructure innovations also are primarily responsible for forecasts that predict falling market activity and the disappearance of markets in the future.³⁰ General improvements to the marketing environment (e.g., more commercialized marketing networks or better communications), another factor that is related to rising demand density, also should facilitate the process of modern marketization, *ceteris paribus*.³¹

A Summary of Skinner's Model and Predictions

Using the model described by Skinner, two different sets of factors explain observed changes in markets over time and differences in market development across regions. First, the predicted direction of the impact of the causal elements during the two phases of market development (discussed above and summarized in Table 3). In both the intensification and modernization phases, rising populations and incomes positively affect market activity (rows 1 and 2). While Skinner does not address the impact of transport on market emergence in the traditional period, it is clear that in the modernization period, improved transport should cause a decline in periodic markets (row 3). In addition, general improvements to the marketing environment should decrease markets in the same way that transport improvements decrease markets (row 4).

Regardless of whether or not a factor is positively or negatively related to market activity, the magnitude of the change in that factor over a certain period of time or space also determines how large of an impact each has on market emergence or disappearance. Income growth, for example, could have had a large positive effect on marketing activity in traditional times--if it had occurred. Since per capita incomes were relative constant,

²⁸ Ibid, pp. 212 and 217.

²⁹ Ibid, pp. 202 and 212.

³⁰ Skinner, "Rural Marketing in China: Repression ..."

³¹ Skinner, "Marketing and Social Structure ...", p. 203.

especially compared to the steady rise in population, income changes would not have played a major role in periodic markets. Stylized trends of population, income, and transport infrastructure are given in Figure 1, Panel A.

Combining the predicted coefficients of the relationship between rural marketing activities and the main causal factors (Table 3) with the stylized trends (Figure 1, Panel A) leads to predictions of net effect of income, population, and transport on changes in periodic market activity in reform China in these forces constituted the universe of factors affecting market development (Panel B). When taken together, clear predictions emerge (Panel C). In less developed areas and in less developed times, rising populations (and rising incomes—if they occur) should lead to rapid growth of markets, while the relatively poor transportation (and/or slow rate of improvement in transport) will exert little pressure on markets to disappear (left-hand-side of Panel C). As the reforms progress (and in better-off areas) one would expect that even though rising incomes would continue to stimulate new demand for marketing activity, the rise in modern transport would trigger the development of a modern marketing system that would be characterized by disappearing market sites and a fall in market activity (right-hand-side of Panel C). The left-hand-side of the graph would represent either traditional intensification or “false modernization”;³² while the right-hand-side is what would happen if the economic forces of the traditional economy were dominant throughout the reforms through the end of the century.³³

Rapid Expansion of the Reform Period

Predictions based on the pattern of traditional market development—roaring economic growth, rising population counts, and radical improvement in China’s road, rail, and water networks during the reform era—provide no clear-cut predictions on periodic market activity after the onset of China’s late twentieth-century drive for modernization. On a national scale, China’s gross value of rural social product (a measure of income) rose by 500 percent in real terms between 1978 and 1995, and the rural population expanded by more than 109 million people, or 13.5 percent.³⁴ According to the theory discussed above, rises in demand from income and population increases

³² William G. Skinner, “Marketing and Social Structure …”, pp. 196 and 216.

³³ William G. Skinner, “Differential Development in Lingnan”, chapter in Thomas P. Lyons and Victor Nee (eds.), *The Economic Transformation of South China Reform and Development in the Post-Mao Era*. Ithaca: Cornell East Asian Series, No. 70 (1994).

³⁴ *Zhongguo Nongcun Tongji Nianjian* (henceforth, ZGNCTJNJ) [China Rural Statistics Yearbook], Beijing: Zhongguo Tongji Chubanshe (1996).

should stimulate markets. On the other hand, infrastructure in rural areas, including transportation, also has improved dramatically, and should, according to theories examining traditional market development, cut the friction of distance and enlarge marketing areas as local markets disappear and meet less frequently.³⁵ Similarly, our sample villages in every province experienced rapid growth in incomes (Table 3, row 1), exhibited positive population growth rates (row 2), and became increasingly integrated into national markets through the expansion of roads and access to transportation (rows 3-8). Hence, based on the traditional market development paradigm, there is no way to unambiguously predict which force would prevail. In his 1985 work, Skinner must have believed that the forces of modernization, triggered by the improvement of transportation, would dominate; he must also have predicted that they ultimately would lead to a peaking of market activity, as permanent stores would arise in central market towns and lead to the disappearance of periodic markets by the end of the century.³⁶

Aggregate Patterns

Rural periodic market activity during the reform era appears to have risen continuously, however, according to a number of measures. During the period of recovery immediately after the Cultural Revolution, periodic markets increased rapidly, rising from 33,000 to 48,000 between 1978 and 1983.³⁷ After this initial flurry of markets, although the pace of market creation slowed, the number of markets has expanded significantly, rising from 61,337 to 72,579 (18.3 percent) between 1985 and 1990 and to 82,895 (14.2 percent) between 1990 and 1995. The value of transactions during these same time periods has increased at an increasing rate.

The pattern of this emergence of markets during the reform period followed that of pre-1949 markets (Table 2). In our study's 207 village sample, leaders in 35 villages (or 13 percent of the sample) reported that their residents attended markets in which periodicity had increased since 1980 (rows 4-5), whereas 43 leaders (or 16 percent) reported that their villagers began attending new markets that appeared between 1978 and 1995 (rows 6-7).³⁸ While there was somewhat more activity in the early period, due perhaps to a resurgence effect (rows 3, 4, and 6), new market emergence and increased frequency also occurred in the later period (rows 5 and 7).

³⁵ Vincent Benziger, "China's Rural Road System during the Reform Period", *China Economic Review* No. 4 (1 1993), pp. 1-17; and Albert Nyberg, "Grain Transport by Rail has Increased", *Agricultural Outlook* Washington, DC: Economic Research Service, United States Department of Agriculture (1996).

³⁶ William G. Skinner, "Rural Marketing in China: Repression ..."

³⁷ *Zhongguo Tongji Nianjian (ZGTJNJ)* [China Statistical Yearbook], Beijing: Zhongguo Tongji Chubanshe (1980-96).

³⁸ Looking at it from the reform era's perspective, "new" markets include both those that were reappearing after being stopped during the Cultural Revolution (1960s and 1970s) and truly new markets.

At least on the national aggregate level, however, it is difficult to determine if rising periodicity was preceding new market emergence, as observed in traditional China. During many of our field visits older marketers told us that as soon as Maoist anti-market ideology thawed, local officials almost immediately allowed markets to return to the same rotation patterns that existed before 1949, and many of the original regulations and institutional features revived. Many interviews left the authors with the impression that these contemporary participants saw little difference in their own marketing institutions and traditions and those run by their parents and grandparents.

Provincial Patterns

The pattern and incidence of new periodic market activity do vary by province, and analysis at this level of aggregation may be more helpful in explaining the nature of market emergence (Table 2, columns 2-7). Nearly all of the new activity appears as increases in the frequency of schedules in Sichuan and Shaanxi Provinces. Most other provinces expanded mainly by establishing new markets. Thus, both aspects of traditional intensification are continuing, but in a somewhat bifurcated manner. One explanation for the dual pattern may be that the poorest provinces experienced rising periodicity while the richer ones produced new markets, a pattern predicted by Skinner.³⁹ This pattern, however, is not universal. While the propensity of markets in Sichuan and Shaanxi to grow by rising periodicity supports such a hypothesis, since both are poor, why does Yunnan, a poor province, experience new markets? Even in Shaanxi Province, the order is not as in traditional times; the appearances of new markets only occurs in first period (column 8, row 6) and only increases in frequencies are observed in the latter period (row 5). In some provinces, new markets and periodicity rise at the same time.

Alternative Measures of Market Expansion

While the aggregate and provincial trends clearly show patterns of accelerating market activity that do not conform to traditional patterns, several characteristics of these statistics may be misleading. First, the appearance of new markets or new market days in existing markets does not capture all aspects of market expansion. Alternative measures that in some sense can combine the two types of “new market appearances” and attendance together in a single index, may be more meaningful. Such measures may be able to capture the multiple dimensions of market emergence better than simple market or period counts. Second, provinces in China are quite large, and borders were drawn on the basis of historic and political criteria, not on economic ones. Provinces may not be the best basis on

³⁹ William G. Skinner, “Marketing and Social Structure ...”, p. 209.

which to judge interregional trends in markets. Alternative categorizations could offer different patterns of periodic market trends.

Finer measures of market activity actually reinforce the pronounced upward trends in market activity. One measure capturing both types of new market activity -- average market days per *xun* per village -- rises in all provinces in both periods, except Shandong Province in the latter period (Table 4, rows 1-3). There is an increase in the number of market days between 1980-88 and again between 1988-95 for every province, except for Shandong Province in the latter period. These findings also support the patterns revealed by national statistics on value of marketed transactions.⁴⁰

Total attendance, an even more basic measure of periodic market activity, provides clearer and stronger evidence of the upward trend (Table 4, rows 3-9). The attendance figures everywhere rose steadily, increasing by two to three times between 1980-95. In absolute terms, average attendance per market day and average customer visits per *xun* per market had greater increases in the recent period.⁴¹ Even in Shandong, the one province in the survey without a significant rise in market days, experienced more than doubling in attendance between 1980 and 1995. In percentage terms, customer visits per *xun* per market day, arguably the most comprehensive measure of market activity, shows the tremendous resurgence of market activity in the 1980-88 period (78 percent), an expansion rate that was almost sustained in the later period (63 percent—column 1, rows 7-9). Surprisingly, in Zhejiang, the most developed, coastal province, the rate of increase in the second period (59 percent) exceeds that in the first (48 percent). Taken at the provincial level, analysis of the overall trend shows that strong continuing increases in the use of periodic markets and the counterbalancing effect of modern transportation systems appear to have not begun to dampen market visits as of the mid-1990s.

In a completely separate set of works Skinner argues that in analyzing spatial data provinces are not the appropriate unit of analysis.⁴² If true, results like those reported in our paper up to now may be misleading. To rectify this problem, Skinner has assigned both core-periphery zones (CPZ) and urban-rural continuum indices (URC) to every county in China. A CPZ measure is assigned to each county using a macro-regional index of highly correlated variables, such as electricity use, meat output, and age structure. The formulation of URC

⁴⁰ This is as discussed above and reported in ZGNCTJNJ, 1990-96.

⁴¹ Figures for average customer visits per *xun* per market were calculated by multiplying attendance per market day by markets per *xun*.

depends essentially on two things, whether the highest level city is a metropolis, regional city, greater city, local city, or market town, and the proportion of the county's population that is urban. Using these two indices of spatial development, however, does not change the pattern of increasing activity of rural periodic markets (Table 5). Activity rises throughout the reform period in both zones nearest the core (the "inner core" zones—columns 1 and 2) and the most urban ones (villages in counties with higher levels of market towns—columns 3 and 4).

Hence, most of the descriptive evidence demonstrates that as incomes and other modernization trends have risen during the reforms, market activity has not fallen. The percentage increase in market customer visits per *xun* by villagers has increased faster in areas with higher incomes (90 percent) than in those with poorer ones (57 percent—Table 5, column 5 and 6). And, instead of exhibiting a traditional pattern of market development (Figure 1, Panel B), as China's leaders have invested in modern transport (as proxied by the average distance between a village and the nearest rail line), periodic market activity is higher in three out of four measures (column 7 and 8).⁴³

Permanent Stores and Periodic Markets

In addition to the rise of new periodic markets, puzzling patterns also appear in the emergence of new stores and the disappearance of markets. In traditional China, the same forces that undermined markets bolstered the construction of stores at permanent locations. With sufficiently dense real demand from higher incomes and improving transport, consumer demand rises enough so that permanent store owners cater to enough clients in a single locality that they can earn a profit. Permanent stores are supposed to provide more efficient retailing and wholesaling service than periodic markets. But while the rise in incomes experienced by those in every province did trigger an expansion of permanent stores (Table 7), they did so even as markets have simultaneously continued to expand.⁴⁴

⁴² William G. Skinner. "Differential Development in Lingnan ..."

⁴³ William G. Skinner has assigned both core-periphery zones (CPZ) and urban-rural continuum indices (URC) to every county in China. The formulation of the URC depends essentially on two things, whether the highest-level city in the county is a metropolis, regional city, greater city, local city, or market town, and the proportion of the county's population that is urban or rural. The CPZs are assigned to each county using a macro-regional index (MRI) of highly intercorrelated variables -- such as farm income, electricity use, meat output, and age structure -- which has been "de-urbanized" so as to make it statistically distinct from the URC (although still correlated with it at about the .50 level).

⁴⁴ Correlation coefficients measuring the co-movement of the village-level stores and income are positive and significant (at the one percent level), a result consistent with pre-1949 observed patterns of market development. However, the correlation coefficient between permanent stores and periodic markets is also positive and significant (at the 10 percent level), a finding inconsistent with the hypothesis that markets are crowded out as the economic environment that can support permanent stores develops.

Evidence of Periodic Market Activity Slowdown

Careful examination of the aggregate trends, however, can reveal certain pieces of descriptive evidence that China may be nearing the point where market institutions have peaked and will begin to be replaced by more modern marketing systems. According to national aggregate statistics, the rate of increase in number of markets, as stated above, has declined with each five-year period. In fact, in the mid-1990s, for the first time, the total number of periodic markets showed an absolute decline (between 1994 and 1995). Moreover, unlike the slowdown in market expansion that accompanied the nationwide recession in 1989, the reversal in the growth rate of periodic markets nationwide occurred while the nation's rural growth rate was hitting a ten-year high.

In the study's survey evidence, although periodic market activity may be interpreted as continuing to rise when the sample is divided into those areas with better and poorer transportation (Table 5, columns 7 and 8, rows 1, 2, and 4), the rate of increase was faster in those areas with poorer transport (99 percent) than in those with better transport (64 percent—row 3). Moreover, in some of the richest sample villages in Zhejiang province, leaders reported that villagers were beginning to attend only one market, a sign that some of the marketing functions were beginning to take place through other channels. In fact, nationwide nearly 30 percent of villages reported attendance at only one periodic market.

Multivariate Analysis of Patterns of Periodic Market Emergence

The pattern that has emerged in the *descriptive* data is clear -- there is no obvious sign of a decline in the use of periodic markets even in the most developed areas. As shown by the figures in seven of eight cells for Skinner's own CPZ and URC indices (Table 6, columns 1-4), intensification of markets is continuing even under modernization. Skinner himself, however, created his spatial hierarchies to be used together in a matrix.⁴⁵ In Figure 2, Panel A, we show such a CPZ-URC matrix for total customer visits in 1995. Although we have observations for 24 individual cells, we have had to group them into only three segments in order to get a clear trend. At this level of aggregation, the pattern in the matrix indicates that those villages in the upper left hand segment (or those in the most developed regions of China) have more than five times the customer visits per *xun* as those in the lower right hand cells. Panel B shows the matrix for new market activity (i.e. whether villages reported

⁴⁵ The CPZ index measures the level of development of a region, with a low number meaning a region is near the core, while a higher number is one that is far in the periphery. The URC index measures the degree of urban development with a low number meaning a region is very urban, while a high number is one that is very rural.

new markets being established or increased schedule frequency at existing markets). This matrix also breaks into only two segments, and there also is clearly more new market activity in the more developed areas (upper left-hand corner). Hence, using Skinner's own spatial hierarchies together in a two dimensional analysis, reveals the same trend -- not only is there more total market activity in the more developed/urban areas, even new market activity is concentrated there.⁴⁶

Multivariate Regression Analysis

Regression analysis is used to measure the net effect of individual variables on market activity while controlling for the effects of other independent variables, and avoid the problems inherent in simple descriptive statistics. Table 8 presents the results of the equations in which the most comprehensive measures of market activity, "customer visits per xun per market" is regressed on those factors expected to affect market emergence and disappearance: income per capita (INCOME), population density (land to person ratios--POPDENSE), different combinations of two transportation variables (TRANSPORT I and II), and Skinner's core-periphery and urban-rural continuum variables (CPZ and URC and an interaction term, a proxy for among other things, the general market environment). The analysis also included two control variables, one to account for the distance of each sample village from the country seat (CNTYDIST), and the other to hold constant the location of the market, MKTLOC, in the village (MKTLOC=1) or the village's own township (MKTLOC=2) or otherwise (MKTLOC=3). Two general forms of the regressions are used, one explaining the *level* of market activity in 1988 and 1995 (Tables 8) and the other explaining *differences* in the activity of periodic markets between 1988 and 1995 (Appendix Table 1).⁴⁷

The multivariate regression analysis provides strong evidence results in support of Skinner's predictions of the demand-related determinants of market development. The variables representing income and population are all positive and statistically significant. When incomes rise or when populations become more dense, holding all other things equal, periodic market activity becomes more intense. Hence, the multivariate findings illustrates that even the story that is told by the descriptive statistics in the rest of the paper holds up to more rigorous analysis.

⁴⁶ William G. Skinner, "Differential Development in Lingnan."

⁴⁷ The models generally performed fairly well according to both statistical and economic criteria. Adjusted R-square statistics, measures of goodness of fit, ranged between 0.09 and 0.43, with those in all but 2 equations above 0.20, levels that most economists consider highly acceptable in cross-section analysis (bottom row, Tables 7a and 7b). The signs on the coefficients of control variables also are mostly consistent with a priori expectations and the size of their t-ratios demonstrate their importance in the analysis (e.g., Table 7a, rows 8 and 9). For example, rural periodic market activity is greatest in the areas immediate around county seats (DISTCTY--given all other factors

But whereas on the effect of demand density variables appears to be strongly supported by the data, the pre-1949 observations of the importance of the rise of modern transport in explaining the decline of periodic markets does not have overwhelming support (see Appendix 1 for a more detailed discussion). In some of the specifications, there is weak evidence that as transportation and communication improve, periodic markets begin to decline. For example, in the far periphery, this is may be true. In Yunnan province, we also see evidence that Skinner's predictions hold up. Most of the findings, however, do not provide support for this part of the Skinner's proposition.

Explanations and a More General Approach to Understanding Market Emergence

Descriptive and multivariate analyses have provided mixed evidence on how well contemporary patterns in the rise and fall of periodic markets followed those of traditional times. In this concluding section, we first offer several explanations of why periodic markets may not have disappeared or why even their growth has not decelerated very much. We also briefly describe a framework that might offer a more complete analytical approach to understanding market emergence and persistence.

Why Is the Transport Effect Not More Significant?

Although some results indicate the beginning of pressures from transportation modernization on the activity of periodic markets, the continuous rise in attendance and the appearance of new markets demonstrate that the pivotal effect of modern transport has not materialized. One explanation of either a delayed, weak, or absent impact of modern transport on market activity is that there is a set of barriers that has arisen holding back the development of permanent stores, the hypothesized substitute for periodic markets. In our attempt to discover such barriers, we interviewed traders and permanent store owners and managers in 16 markets across China in 1997. On the basis of these interviews, we identified a number of reasons why market activity was still so popular and why permanent stores had not proliferated more during the reform era. The most common answers related to tax policy, land regulations, and capital shortages.

Local officials clearly understand how difficult it is to collect taxes from itinerant peddlers. As a consequence, officials spend little time trying to collect value-added taxes, relying instead on simple taxation methods such as collecting stall fees or negotiating lump sum fee payments. In contrast, tax officials can more

constant) and when the market is located further from the village it tends to increase in size since the primary market draws on a longer area.

accurately gauge the volume of sales and tax burdens of permanent stores. On the basis of our small sample, the average tax rate of permanent stores sales, 15 percent (9 percent national and 6 percent local), far exceeds that of the typical seller at periodic markets (less than 1 percent). These figures are actually quite close to back-of-the-envelope calculations made on the basis of market tax collection data reported in Zhou.⁴⁸

Poor land markets also may be retarding the rapid rise of permanent stores in some areas. Several periodic market vendors expressed their frustration at not being able to buy land at busy centers of exchange. One official blamed recent national and local restrictions on conversion of cultivated land to non-farm use. Even when land was available, however, one long-time peddler believed that the high cost of land, raised in part by the plethora of taxes, fees and side payments required for leasing land, made it less attractive to set up shop.

Finally, a number of traders and permanent shop owners complained that even in areas with land available at a price at which profitable shopkeeping was possible, the unavailability of reasonably priced capital precluded a rush by many to open shops. In China's reform economy, the rural financial institutions remain one of the least liberalized sectors.⁴⁹ Bank officials ration credit, often directing it towards politically important projects and collective users, especially those in industry, and away from the private sector. Informal credit can meet some of the need, but rates are high and availability is sometimes questionable. In response, farmers have put most of their investment funds into housing and enterprise development.⁵⁰ Hence, the "friction of land and capital" may be keeping the rise of modern transport from reducing the "friction of distance," providing periodic markets a competitive advantage even in an era when permanent stores should flourish.

Toward a New Theory of Market Emergence

So, is Skinner right or wrong? The answer to this question in one sense is misleading and unfair. Skinner's 1964 work on rural marketing in the pre-liberation period is a remarkable analysis of enduring valuee that has provided new insights to countless students of markets and rural society. Skinner brought together in a single analytical framework, a rich and diverse set of data, and personal observations, bringing order to a heretofore, scattered but rich literature on periodic markets. We have seen few works question his explanations of late Imperial and Republican periodic market emergence. In our work, the main contribution that we add is the insight that

⁴⁸ Kate Xiao Zhou. *How Farmers Changed China: Power...*

⁴⁹ Albert Park, Loren Brandt and John Giles, "Credit, .

⁵⁰ Terry McKinley, *The Distribution of Wealth in Rural China*. Armonk, New York: M. E. Sharpe (1996).

income may have played a larger role in the appearance of periodic markets than previously recognized, if recent scholarship on the pre-1949 growth of per capita domestic product is correct.

The generalizability of his predictions, however, were doomed to fail, mainly as a result of his excruciatingly accurate and careful attention to the institutional details of pre-liberation China. A model built primarily to explain a single historic phenomenon should not be expected to “forecast out of sample.” The overall institutional environment of the late Communist period is so different than that ruled by the KMT or last Emperors that it is no wonder that Skinner could not foresee all of the factors that affect periodic markets in the 1990s. The ad valorum tax, one of the reasons that permanent stores may be at a competitive disadvantage relative to periodic markets in China today, was not even known to the world of the 19th century. The consolidation of power of the Communist Party and the extension of reach of the government, which gave it control over most of the rural land and capital, all occurred long after Skinner’s visits to rural Sichuan and Shandong in the late 1940s. A complete model of market emergence needs to account for tax, land, and banking policy, as well as the density of demand and construction of national infrastructure.

In short, part of the inability of Skinner’s theory to explain the rise or disappearance of rural periodic markets in reform-era China (or any other institution in a given historical time period) may be that his analytical framework focused on the political economy of pre-liberation China, and did not incorporate general enough explanatory variables that allowed consideration of a set of new determinants that have arisen during China’s recent drive to modernize and reform. It is very possible that transportation costs measured in time and money was a determining factor of market emergence and periodicity. Skinner being right about periodic markets in the 1930s, however, is no guarantee that his model can provide accurate predictions of market persistence as China’s economy changed in the Socialist and Reform periods. Using a more general conceptual basis that identifies and relies on more fundamental economic forces of transformation, such as one that uses transaction costs or the ideas of new institutional economics, may provide broader explanatory power.

The new institutional economics approach is guided by three deductive assertions. First, institutions (including markets) are defined and enforced by property rights, rules, and regulations. Second, the form of a given institution changes over time owing to technological innovations, demographic transformation, integration, specialization, and other factors. Third, not all institutions are efficient since they reflect entrenched interests. The

transaction costs of bargaining, measurement, and enforcement must be overcome if institutions are going to evolve toward a more optimal form.

Such a general transaction cost approach would have allowed for all of the elements in Skinner's original model, in addition to explicitly considering the tax transactions, property rights issues, imperfections in other markets and other rules and regulations that our general inquiry into the persistence of periodic markets uncovered. Rising incomes and population densities raise the returns, or lower average fixed costs, to periodic market vendors, and like Skinner's assertions, would stimulate the rise of new markets and increased market-day frequencies. Similarly, transportation improvements lower transaction costs for those wanting to attend permanent stores, would help hasten the demise of periodic markets. However, even if demand conditions are such that they will support the transition to a new marketing form, such as permanent stores, tax policies and imperfect land and capital markets may impose such high transaction costs on prospective store owners that they forego the opportunity that they would otherwise pursue. Undoubtedly, a more comprehensive survey of market operators, store owners, and other merchants and officials involved in China's retail rural commerce would have illuminated other factors affecting transaction costs that have help create the post-reform trends that we are observing. Using a general theory of institutional development would most certainly have helped guide such an investigation.

The careful use of a more general theoretical framework also may have broadened the inquiry beyond the dual option of periodic markets or permanent stores. Again, this is not necessarily a criticism of the investigations of rural commerce in the 1930s. The choice between periodic markets and permanent stores for those wishing to sell to rural consumers and buy from farm and handicraft producers may well have constituted the universe of options at that time. In the 1990s, however, with the advent of communications (*technological innovations*), the changing structure of the age and experience of rural consumers (*demographic transformations*), and the rise of commercially-oriented state-owned trading firms (e.g., grain companies; seed enterprises; agricultural inputs corporation branches—or organizations created by administrative edicts of the Socialist government and liberalized by Deng's reformers by *rule and regulation changes*), certainly has opened up the opportunity for many additional marketing channels to emerge, such as modern grain wholesaling firms, contracting arrangements between large trading corporation and their agents, etc.

The authors of works examining other marketing forms discuss and describe the role of property rights changes, policy reforms, and other elements in the advent of new forms of exchange. For example, Sicular has documented the role of commercialized state trading in the formation of competitive rural markets.⁵¹ Entwistle et al. note the emergence of a self-employed class and their importance in the process of market development.⁵² Their role in grain trade has materialized as private door-to-door salespersons engaged in the wholesaling of fertilizer and procurement of grain and other crops, an activity that currently occurs in almost every village in China. The appearance of these new participants in markets in rural China undoubtedly has implications for the future evolution of periodic markets and other rural marketing channels. Not only is coming up with a model to explain the impact of these alternative marketing forms on periodic markets a new challenge, it is undoubtedly overshadowed by the need for a more general framework to explain the new marketing institutions that have, are, and will emerge in China's dynamic countryside.

⁵¹ Terry Sicular, "Redefining State, Plan and Market: China's Reforms in Agricultural Commerce", *China Quarterly*, No. 144 (1995), pp. 1020-46.

⁵² Doris Entwistle, Karl Alexander, and Linda Olson, "The Gender Gap in Math: Its Possible Origins in Neighborhood Effects", *American Sociological Review*, Vol. 59 (No. 6 1994), pp. 822-38.

Appendix 1

Detailed Discussion of Regression Analysis Results Explaining Periodic Markets

A multivariate analysis provides fairly unambiguous results in support of Skinner's predictions of the demand-related determinants of market development. As predicted by Skinner and other early observers of periodic market activity, all 12 specifications of the equations show that as incomes and population densities rise, periodic market activity increases (though in some equations the t-ratios are higher than others). The income variable is most significant in the level equations without the TRANSPORT II variable, equations 1 and 4, Table 8 (perhaps a result of collinearity between the measures of income and transportation), and in the *linear* difference equations, equations 7 to 9. For example, at the margin when per capita income rises by 100 yuan, nearly 9200 more customers (see the coefficient, 92, on the income variable—equation 1). The sign on the coefficient of the differenced income variable (a measure of the difference in per capita income between 1988 and 1995) in the difference equations also is positive and has an even higher t-ratio. Areas where incomes have changed the fastest also have experienced the largest increases in customer visits per xun. Interestingly, if this same relationship between income and periodic markets held in the pre-1949 era, to the extent that the estimates of rising per capita incomes found by Rawski and Brandt are correct, the success of markets may have another major source largely unrecognized by Skinner and others working on China traditional marketing systems.⁵³

Population densities similarly affect market activity (equations 1 to 12). The coefficients on the population density variables are even more significant in a statistical sense than income. The results confirm the intuition of the early observers of the importance of population pressures, but have to be interpreted with caution. Interestingly, in our sample, fully one-third of the villages experienced population changes that were negative, indicating that migration has affected the density of demand in some regions. Isolated areas typically export labor, while prosperous regions attract many of these same migrants (although many go to cities). Thus, the strong, positive relation between changes in population and market activity is the result of already prosperous areas attracting migrants, while poorer ones send workers out.

⁵³ Thomas Rawski, *Economic Growth in Prewar China*, Berkeley: University of California Press (1989); and Loren Brandt, *Commercialization and Agricultural Development: Central and Eastern China*, New York: Cambridge University Press (1989).

But whereas the effect of demand density variables appear to be strongly supported by the data, the pre-1949 observations of the importance of the rise of modern transport in explaining the decline of periodic markets does not have overwhelming support. The measure of rail (and accompanying) transport (TRANSPORT I) is not significant in any of the level or difference equations, its t-ratio exceeding 1.00 in only one equation. The coefficient on the variables representing bus transport (TRANSPORT II) is significant in the level equations (equations 2, 3, 5, and 6), but the sign is surprisingly positive (perhaps partly explained by its high correlation with income). While negative, the coefficients on the TRANSPORT II variable are insignificant in the linear difference equations (equations 8 and 9). The only evidence of significant negative impact of transport appears in the difference equations which includes the TRANSPORT II variable in both linear and squared form, a statistical method designed to measure the relationship between two variables when they are non-linear (equations 11 and 12). Expansion of market activity finally begins to abate when a village's bus system develops to a level that more than 100 buses per day pass the village. Far above the mean (approximately 50 buses per day), this result may mean that Skinner's 1985 insights were right, but that he miscalculated the extent to which the transport system had to develop before it impacted periodic markets.

The signs on the coefficients of the macro-region variables, CPZ and URC, demonstrate a complex, non-linear relationship between the factors that these indices represent and periodic market activity. As one moves out from the core metropolises and from highly urban into more rural regions, holding income, population, and transport constant, market activity rises, much like Skinner showed in his example of Ningbo and the Sichuan Riverine System.⁵⁴ To the extent that the two spatial indices capture differences in marketing infrastructure (the lower the number, the better the infrastructure, transportation held constant), the impact of improvement in the infrastructure (for example, better communications) would lead to a reduction in the friction of distance and fall in market activity. However, after approximately halfway between the inner core and far periphery (when CPZ equals 3 or 4) and after approximately halfway between the most urban and most rural areas (when URC equals 3 or 4), periodic market activity begins to fall (due to the negative sign on the interaction term). Just as in the case of the TRANSPORT II variable in the difference equation, the effect of marketing infrastructure does not appear to turn negative until it reaches some fairly high threshold.

⁵⁴ William G. Skinner, "Marketing and Social Structure", pp. 209-216 and 223-224.

The equations, which included a set of provincial dummy variables (equations 4 to 6), hold one more small piece of evidence that periodic markets are starting to disappear or slow down in the richer areas. The only significant coefficient on any of the provincial indicator variables is that for Yunnan Province, one of the poorest in the sample. To the extent that Yunnan's transportation, communication, and general marketing infrastructure are inferior to those in other provinces, it may mean that the area has, *ceteris paribus*, more market activity than elsewhere. The fact that all of the other provinces are statistically indistinguishable from Shaanxi Province (the poorest province that was the base province in the analysis) may mean either that transportation infrastructure at the provincial level does not matter or that it is already adequately controlled for in the analysis.

Appendix Table 1. Regression Results Explaining Rural Periodic Market Activity in China Using Ordinary Least Squares Estimator

| Independent Variables ^a | Dependent Variable: Differences in Customer Visits per Xun per Market between 1988 and 1995 | | | | | |
|------------------------------------|--|-----------------|-----------------|------------------|------------------|------------------|
| | (7) | (8) | (9) | (10) | (11) | (12) |
| Density of Demand | | | | | | |
| Income | 35 (1.99) | 67 (3.37) | 66 (3.44) | 4.07 (0.16) | 29 (1.38) | 29 (1.06) |
| Income Square | | | | 0.05 (1.11) | 0.10 (1.57) | 0.10 (1.36) |
| Population | 0.95 (2.27) | 2.53 (3.54) | 2.74 (3.44) | 0.44 (0.94) | 0.67 (0.74) | 0.73 (0.73) |
| Population Square | | | | 0.0003 (1.78) | 0.0003 (2.67) | 0.0008 (2.40) |
| Modern Transport | | | | | | |
| Transport I (Railways) | -7.47 (0.41) | | -10 (0.48) | 8.3 (0.13) | | -15 (0.24) |
| Transport I Square | | | | -0.01 (.12) | | 0.03 (0.33) |
| Transport II (Buses) | | -117 (1.32) | -140 (1.48) | | 497 (3.37) | 509 (3.16) |
| Transport II Square | | | | | -2.89 (5.56) | -2.94 (5.27) |
| General Market Environment | | | | | | |
| Core-Periphery (CP) | 12833 (1.80) | 7038 (0.95) | 7291 (0.89) | 7913 (1.11) | -2523 (0.38) | -2230 (0.30) |
| Urbanization (URC) | 16791 (2.31) | 10897 (1.43) | 11061 (1.30) | 10695 (1.44) | 518 (0.07) | 1335 (0.17) |
| Interaction (CP*URC) | -3852 (2.26) | -2502 (1.41) | -2580 (1.31) | -2612 (1.50) | 35 (0.02) | -24 (0.01) |
| Distance to County Seat | | | | -480 (1.99) | -410 (1.87) | -419 (1.62) |
| Market Location | | | | 10824 (2.46) | 15463 (3.88) | 16840 (3.59) |
| R-Square | 0.09 | 0.20 | 0.20 | 0.15 | 0.43 | 0.42 |

Table 1. Characteristics of Primary and Secondary Rural Periodic Markets in China, 1995

| | China ^a | | Zhejiang | | Hebei/Liaoning | | Shandong | | Hubei | | Sichuan ^b | | Yunnan | | Shaanxi | |
|---|--------------------|-----------|----------|-----------|----------------|-----------|----------|-----------|---------|-----------|----------------------|-----------|---------|-----------|---------|-----------|
| | Primary | Secondary | Primary | Secondary | Primary | Secondary | Primary | Secondary | Primary | Secondary | Primary | Secondary | Primary | Secondary | Primary | Secondary |
| Primary reason for going to market | | | | | | | | | | | | | | | | |
| To buy grain and other crops | 41 | 29 | 81 | 13 | 12 | 21 | 34 | 38 | 31 | 42 | 48 | 23 | 42 | 25 | 28 | 25 |
| To buy articles of daily use | 39 | 21 | 13 | 19 | 60 | 29 | 47 | 38 | 66 | 14 | 26 | 13 | 33 | 4 | 41 | 16 |
| To sell grain and other crops | 17 | 34 | 3 | 50 | 24 | 43 | 13 | 19 | 3 | 17 | 26 | 23 | 25 | 71 | 22 | 59 |
| Other | 2 | 16 | 3 | 18 | 4 | 7 | 6 | 5 | 0 | 27 | 0 | 41 | 0 | 0 | 3 | 0 |
| Non-local buyers and sellers | | | | | | | | | | | | | | | | |
| Buyers | 45 | 68 | 42 | 100 | 74 | 72 | 48 | 52 | 52 | 76 | 20 | 60 | 73 | 67 | 47 | 77 |
| Sellers | 48 | 67 | 42 | 100 | 70 | 78 | 81 | 74 | 52 | 76 | 20 | 60 | 36 | 100 | 50 | 70 |

Source: Authors' data.

^a Weighted average by rural population of eight sample provinces.

^b Includes only 5 villages in Sichuan on the origins of buyers and sellers; data are missing for the others.

Table 2. Year of Establishment and Changes in Scheduled Frequency of Rural Periodic Markets in China

| | China | Zhejiang | Hebei/ Liaoning | Shandong | Hubei | Sichuan | Yunnan | Shaanxi |
|--------------------------------|-----------------|----------|--------------------|----------|-------|---------|--------|---------|
| (percent) | | | | | | | | |
| Year market was established | | | | | | | | |
| 1949 and before | 77 ^a | 69 | 56 | 78 | 62 | 100 | 66 | 72 |
| 1950-1977 | 5 ^a | 13 | 7 | 0 | 0 | 0 | 17 | 13 |
| 1978-1995 | 18 ^a | 19 | 37 | 22 | 38 | 0 | 17 | 15 |
| (number of markets) | | | | | | | | |
| Increase in Schedule Frequency | | | | | | | | |
| 1980-88 | 22 ^b | 1 | 0 | 1 | 0 | 10 | 1 | 9 |
| 1988-95 | 13 ^b | 0 | 0 | 1 | 0 | 9 | 1 | 3 |
| New markets established | | | | | | | | |
| 1980-88 | 24 ^b | 3 | 5 | 6 | 3 | 0 | 2 | 5 |
| 1988-95 | 19 ^b | 3 | 5 | 1 | 8 | 0 | 2 | 0 |

Source: Authors' data.

^a Weighted average by rural population of eight sample provinces.

^b Total for eight sample provinces.

Table 3. Hypothesized Relationships between Rural Periodic Market Activities and Determining Factors in the Traditional and Contemporary Periods

| | Traditional Intensification | Contemporary Modernization |
|----------------------------------|-----------------------------|-------------------------------|
| Rising Population | + | + |
| Rising Incomes | + | + |
| Transportation Improvements | +/- | - |
| General Marketing Environment | ? | -/+ |

Table 4. Economic Growth, Rising Population Density, and Improvements in the Infrastructure of

| | China ^a | | Zhejiang | | Hebei/Liaoning | | Shandong | | Hubei | | Sichuan | |
|--|--------------------|------|----------|------|----------------|------|----------|------|-------|------|---------|------|
| | 1988 | 1995 | 1988 | 1995 | 1988 | 1995 | 1988 | 1995 | 1988 | 1995 | 1988 | 1995 |
| Rural income per capita in current yuan | 535 | 1531 | 902 | 2966 | 584 | 1715 | 594 | 1695 | 498 | 1511 | 449 | 1158 |
| Persons per mu of cultivated land | .90 | .96 | 1.4 | 1.5 | | | .64 | .66 | .97 | 1.1 | .94 | .99 |
| Average distance from village to market (km) | | | | | | | | | | | | |
| Primary market | 5.2 | | 5.5 | | 6.4 | | 2.3 | | 5.4 | | 5.4 | |
| Secondary market | 8.1 | | 7.1 | | 7.7 | | 6.0 | | 6.3 | | 7.1 | |
| Road quality ^b | 4.3 | | 4.4 | | 4.8 | | 4.4 | | 4.3 | | 4.2 | |
| Distance by road type (km) | | | | | | | | | | | | |
| Paved | 3.6 | | 2.6 | | 5.4 | | 1.6 | | 5.8 | | 2.9 | |
| Earth | 7.3 | | 9.2 | | 11.1 | | 3.2 | | 4.3 | | 7.0 | |
| Distance of railroad | 85 | | 129 | | 39 | | 55 | | 74 | | 93 | |

Source: Authors' data.

^a Weighted average by rural population of eight sample provinces, except for rural income.

^b A paved road is given a 5, an earth road able to pass a car is given a 4, roads not able to pass a car were given less than a 3.

Table 5. Attendance and Schedule Frequency of Rural Periodic Markets in China

| | China ^a | Zhejiang | Hebei/ Liaoning | Shandong | Hubei | Sichuan | Yunnan | Shaanxi |
|--|--------------------|----------|--------------------|----------|-------|---------|--------|---------|
| Average market days per xun per village | | | | | | | | |
| 1980 | 4.0 | 6.6 | 4.4 | 1.9 | 6.2 | 3.5 | 3.7 | 3.9 |
| 1988 | 4.6 | 7.1 | 5.3 | 2.3 | 7.2 | 4.0 | 4.9 | 4.6 |
| 1995 | 5.6 | 8.1 | 6.0 | 2.3 | 10 | 5.1 | 6.1 | 4.7 |
| Average market attendance per day | | | | | | | | |
| 1980 | 5140 | 6580 | 4106 | 9148 | 1783 | 5172 | 2612 | 2107 |
| 1988 | 8921 | 8645 | 9516 | 16859 | 4963 | 7309 | 4718 | 4353 |
| 1995 | 12313 | 11119 | 15219 | 21859 | 7900 | 9058 | 9181 | 6762 |
| Average customer visits per xun per market | | | | | | | | |
| 1980 | 20457 | 35161 | 22554 | 21396 | 14944 | 22429 | 10660 | 8458 |
| 1988 | 38297 | 51859 | 57036 | 38375 | 45348 | 34365 | 19545 | 19525 |
| 1995 | 62030 | 82394 | 89896 | 51095 | 79000 | 51916 | 63074 | 33278 |

Source: Authors' data.

^a Weighted average by rural population of eight sample provinces.

Table 6. Income, Location, Transportation and the Intensity of Rural Periodic Market Activity in China, 1995^a

| | Core-Periphery Zone ^b | | Urban-Rural Continuum ^c | | Income ^d | | Distance to Railroad ^e | |
|---|----------------------------------|-------|------------------------------------|-------|---------------------|-------|-----------------------------------|-------|
| | Inner | Outer | Urban | Rural | Rich | Poor | Near | Far |
| Villages with increased schedule frequency or new markets established (percent) | 36 | 32 | 31 | 35 | 29 | 39 | 38 | 33 |
| Total customer visits per xun | 71972 | 53480 | 85859 | 52927 | 89554 | 37238 | 67709 | 56681 |
| Increase in customer visits, 1988-95 (percent) | 88 | 71 | 102 | 62 | 90 | 57 | 64 | 99 |
| Villages using secondary market (percent) | 76 | 66 | 75 | 67 | 75 | 65 | 78 | 64 |

Source: Authors' data.

^a All category divisions are made at approximately median values.

^b Zones 3 and below are "inner" regions near core metropolises..

^c Zones 4 and below are urban.

^d Incomes above 1240 Yuan (the mean sample income) are "rich."

^e "Distance" measures in kilometers the distance between the village and nearest rail station. Below 45 kilometers (the mean distances of the sample) is near.

Table 7. The Rise of Permanent Stores in China, 1988 and 1995

| | China ^a | Zhejiang | Hebei/ Liaoning | Shandong | Hubei | Sichuan | Yunnan | Shaanxi |
|---|--------------------|----------|--------------------|----------|-------|---------|--------|---------|
| Number of permanent stores per 100 residents | | | | | | | | |
| 1988 | 0.41 | 0.55 | 0.61 | 0.30 | 0.45 | 0.50 | 0.20 | 0.13 |
| 1995 | 0.86 | 1.05 | 1.14 | 0.65 | 0.86 | 1.02 | 0.52 | 0.67 |

Source: Authors' data.

^a Weighted average by rural population of eight sample provinces.

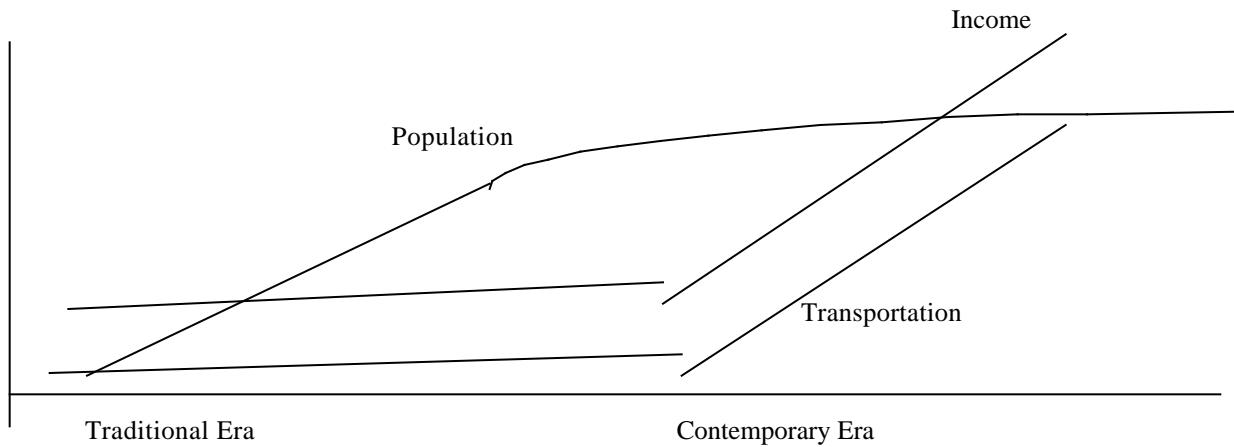
Table 8. Regression Results Explaining Rural Periodic Market Activity in China Using Ordinary Least Squares Estimator

| Independent Variables | Dependent Variable: Customer Visits per Xun per Market | | | | | |
|-------------------------------------|--|-----------------|-----------------|------------------|-----------------|------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Density of Demand | | | | | | |
| Income | 63 (2.01) | 27 (0.85) | 39 (1.26) | 51 (1.24) | 22 (1.05) | 17.25 (0.42) |
| Population | 32750 (2.72) | 16377 (1.26) | 17945 (1.43) | 40832 (3.16) | 22974 (1.68) | 27342 (2.07) |
| Modern Transport | | | | | | |
| Transport I (Railways) | 71 (1.25) | | 48 (0.85) | 6.35 (0.10) | | -6.84 (0.11) |
| Transport II (Buses) | | 571 (3.72) | 515 (3.56) | | 568 (3.69) | 528 (3.63) |
| General Market Environment | | | | | | |
| Core-Periphery (CP) | 41982 (3.00) | 20570 (1.43) | 37896 (2.73) | 48228 (2.86) | 29941 (1.73) | 42099 (2.53) |
| Urbanization (URC) | 37111 (2.50) | 16084 (1.06) | 33444 (2.28) | 38057 (1.89) | 21566 (1.10) | 33938 (1.72) |
| Interaction (CP*URC) | -10685 (3.13) | -5653 (1.61) | -9557 (2.83) | -11733 (2.78) | -7574 (1.78) | -10389 (2.50) |
| Distance to County Seat | -1234 (2.55) | -1559 (3.17) | -1244 (2.60) | -1603 (3.10) | -1997 (3.72) | -1628 (3.16) |
| Market Location | 19128 (2.28) | 20861 (2.48) | 21764 (2.61) | 18790 (2.15) | 21952 (2.51) | 21510 (2.49) |
| Province Effects^a | | | | | | |
| Zhejiang | | | | -2141 | -5034 | 307 |
| Liaoning/Hebei | | | | 23866 | 32729 | 27753 |
| Shandong | | | | 4973 | 17432 | 15639 |
| Hubei | | | | 3217 | 26779 | 1139 |
| Sichuan | | | | 10046 | 10971 | 6552 |
| Yunnan | | | | 82637* | 81576* | 80972* |
| R-Square | 0.21 | 0.20 | 0.25 | 0.26 | 0.21 | 0.26 |

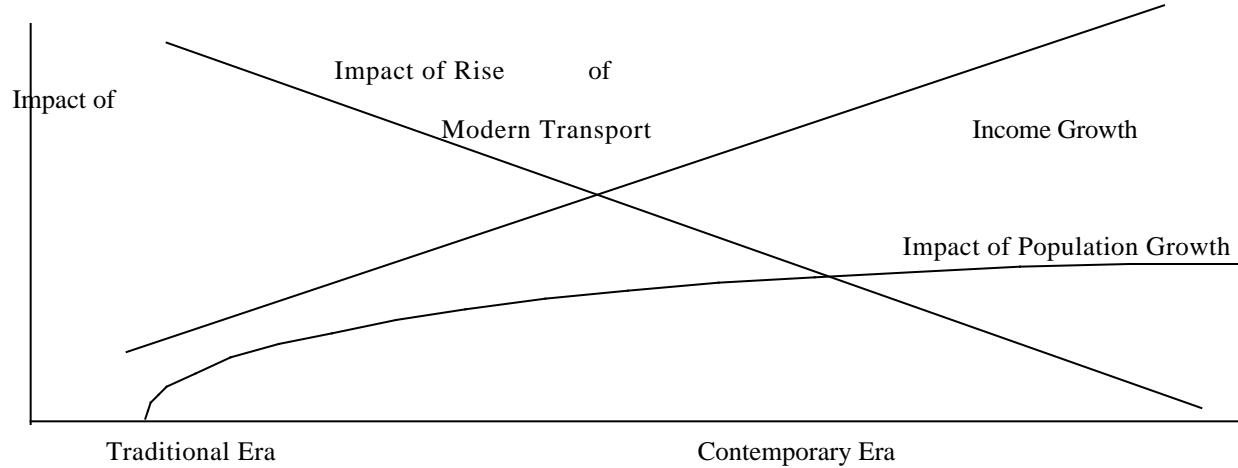
^a T-ratios for provincial dummies not shown.

* Denotes provincial dummy significant at the 1 percent level.

Panel A: Determinants of Rural Periodic Markets (Stylized Activity Levels)



Panel B: Net Impact of Population, Income, and Transport on Market Activity



Panel C: Predicted and Actual Trends of Market Activity

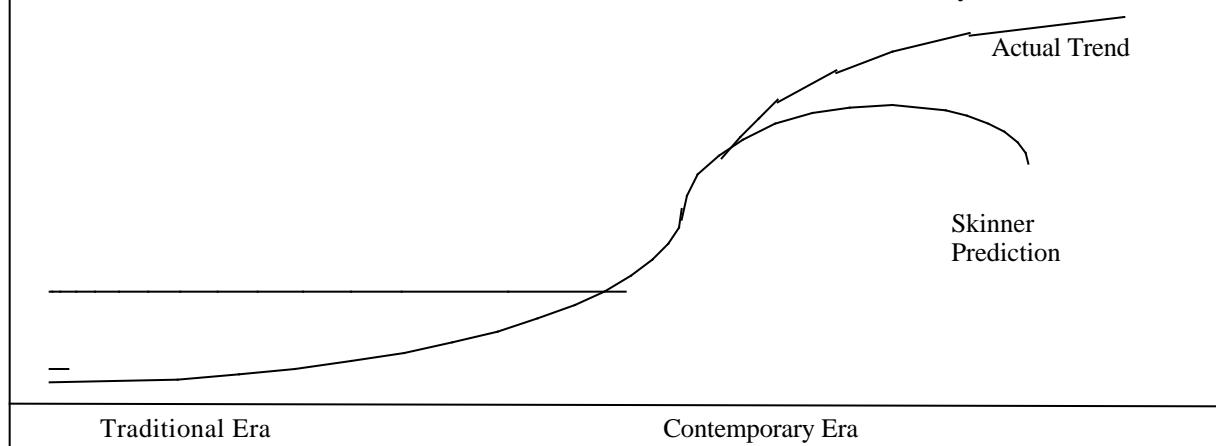
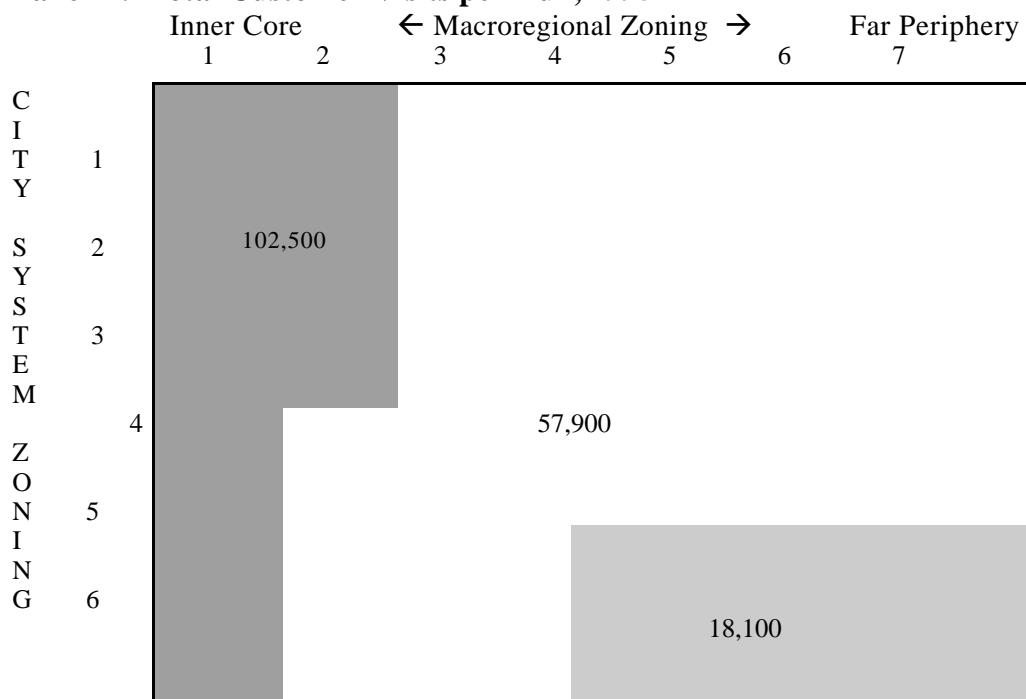


Figure 1. Determinants, Impacts, and Predicted and Actual Trends of Rural Periodic Market Activity in China.

Panel A. Total Customer Visits per Xun, 1995



Panel B. Villages with New Markets or Increasing Periodicity, 1995

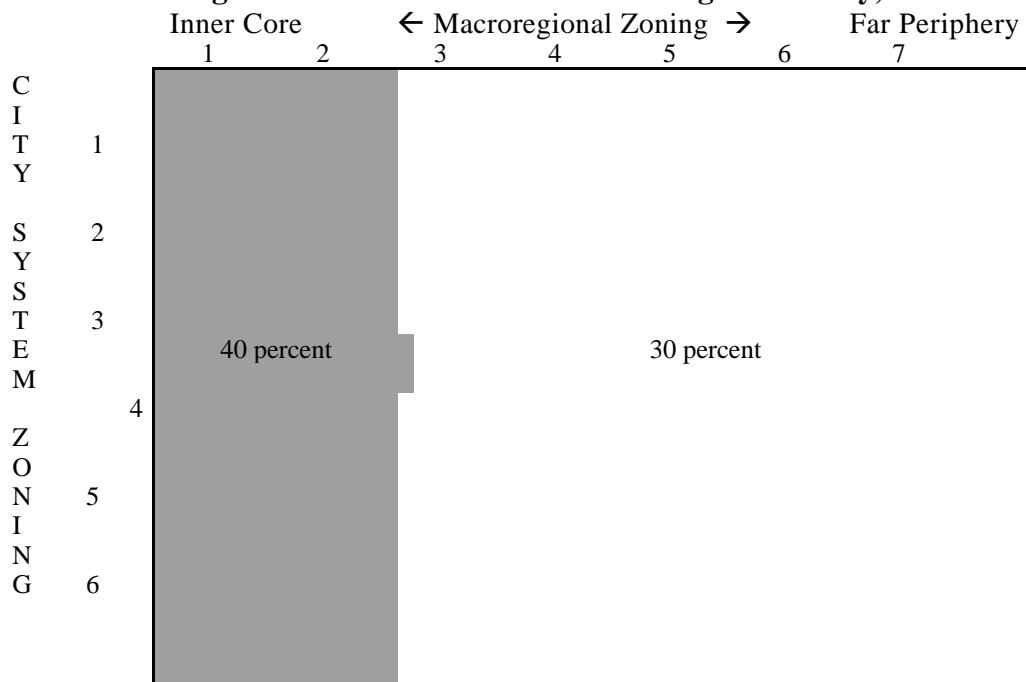


Figure 2. Market Development Patterns Using Core Periphery and Urban-Rural Continuum Matrices.