Strategies for Cross-National Comparisons: Matching Research Issues and Analysis Objectives[1]

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ABSTRACT. Comparisons across different national economies can make a major contribution to understanding the role of entrepreneurial activity and new firm foundings in economic growth and change. At least four cross-national strategies are possible: (1) direct comparisons; (2) historical or time series correlations; (3) comparison of cross-market analyses; or (4) comparison of cross-regional analyses. The distinctive value of cross-regional analyses is considered and illustrated with a comparison of the effects of manufacturing births on economic growth in the U.S. and Japan.

I. Introduction

Why compare entrepreneurial and new firm phenomena in different countries? For three reasons. First, finding the same empirical patterns in different countries provides evidence that the same explanations of entrepreneurial phenomena have broad empirical support and, hence, deserve greater confidence for applications in any one situation. Second, if entrepreneurial activity leads to improved national economic well-being, this may help explain existing differences in national economies. Third, cross-national comparisons can contribute to the identification of government policies and programs that foster entrepreneurship and, presumably, subsequent economic growth. The latter two issues — the relationship to economic growth and policies that may encourage entrepreneurship — are key factors in the increased interest in entrepreneurial phenomena. Several empirical patterns have led to this interest.

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U.S. and western European job growth. That job growth in the U.S. has been, comparatively speaking, very substantial in the recent past seems to be well accepted.

> Over the course of the last 25 years (approximately 1960–85). . . . The 61 percent increase in employment in the U.S. contrasts with increases of 9 percent in France, 1–2 percent in the United Kingdom and Italy, 18–19 percent in the Netherlands and Sweden and a decline of 2.5 percent in (West) Germany (Bishop, 1987).

Considerable evidence — mostly impressionistic — suggests more entrepreneurial activity and "spirit" in the U.S. than in Western Europe (Dickson, 1989a, 1989b). This has led to the inference that the higher levels of entrepreneurship may be a cause of job growth. The fact that Japan has a very high proportion of small firms as well as substantial recent economic growth encourages greater confidence in this relationship.

Regional variation within the U.S. A second empirical observation is related to variation within the United States. Using individual states as the unit of analysis, it was found that the proportion of job losses due to business deaths and contractions was relatively constant. States with higher levels of net job growth, however, had higher proportions of jobs created by new firm births and small firm expansions (Birch, 1979, Table 3-2). When all states were consolidated into four massive multistate regions, the patterns were even more pronounced (Birch, 1979, Section 4). Again, this led to the inference that high levels of state growth was due to firm births and small firm expansions — entrepreneurial activity.

In these analyses the differences in two variables — perceived job growth and perceived entrepreneurial activity — are observed for the

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same time period. The inference that entrepreneurial activity leads to job growth assumes a causal mechanism that may or may not be present. (A recent study that provides stronger evidence of a causal relationship (Reynolds and Maki, 1990) is reviewed below.) Clearly present, however, has been the surge of interest among politicians and legislatures in programs and policies to promote the well-being of new and small businesses (Brown *et al.*, 1990). Those concerned with regional economic well-being have implemented a number of programs designed to increase regional entrepreneurial activity and, it is hoped, subsequent economic growth.

Market and central planning economies. A more recent source of interest in entrepreneurship has been a reevaluation of the benefits of centrally controlled economies. At the conclusion of World War II, Western European nations continued their market-based economies while the Central European nations and the U.S.S.R. utilized centralized economic planning. At about the same time, the People's Republic of China adopted centralized economic planning; shortly thereafter it was adopted by North Korea. A number of other Asian countries employed market-based economic systems (Hong Kong, Japan, Singapore, South Korea, Taiwan). These are two examples of natural experiments that provide a contrast between the impact of centralized planning and market-based economic systems on subsequent economic growth. In both cases the differences are substantial; market-based economic systems appear to be associated with a higher standard of living, particularly when measured on a per capita basis.

While market and centralized economies vary on a number of dimensions, the greater extent of entrepreneurial activity is considered a central feature of market economies. A viable entrepreneurial presence is considered responsible for differences in productivity as well as rates of innovation and change.

Regardless of the unit of analysis — an entire national economy, markets (industries), or a subnational region — the most central research issues are quite similar: (1) What factors affect the presence of entrepreneurial activity? (2) What impact does entrepreneurial activity have on overall economic well-being (jobs, sales, and exports)? (3) Can government policies affect the level or role of entrepreneurship? The remainder of this paper reviews the use of four different research approaches for cross-national analysis of these issues. The conclusions review the optimal strategies for different research questions.

II. Research strategies for cross-national comparisons

> . . . comparative analysis of business and labour organization is beset with formidable problems of language barriers, information gathering, comparability of data, and national idiosyncracies in approach and methodology. The proper response to these hurdles is not, however, to retreat, but rather to engage in increased efforts for cross-national exchange and co-operation. (Sengenberger, Loveman, and Piore, forthcoming, p. 3).

The benefits of achieving reliable cross-national comparisons appear substantial. There are several strategies available for comparisons: direct cross-national comparisons, comparisons of historical or time-series associations, cross-national comparisons of cross-market analyses, and cross-national comparisons of cross-regional analyses. Each of these four types will be reviewed below, concluding with a discussion of the requirements necessary for each type of comparison as well as the intellectual issues most suited for each approach.

A. *Direct cross-national comparisons*

Direct cross-national comparisons are very appealing. They require, at a minimum, the use of the same theoretical conception of the key variables — such as employment, establishment, enterprise, small firm, new firm, etc. Comparisons are even more precise if the operational definition (measurement procedure) is the same for all countries in the analysis.

One recent direct cross-national comparison reviewed the extent to which there has been a general trend across all countries in the size of business firms and establishments (Loveman and Sengenberger, forthcoming). Using summaries from several sources that attempted to develop cross-national comparisons (OECD, 1985; Storey and Johnson, 1987),[2] they acknowledge there

are differences in the definitions of small and large firms (and establishments),[3] what constitutes different industry sectors, and even what constitutes a business firm (as distinct from self employment). Nonetheless, by considering the change in proportion of jobs in small and medium sized firms, it is possible to get some sense of current changes in the industrial structure. Loveman and Sengenberger developed a cross-national comparison of the share of jobs in small and medium firms and small and medium establishments for the Federal Republic of Germany, Italy, Japan, Switzerland, and the U.S.[4] Small and medium units (firms or establishments) generally have less than 500 employees. Since 1970 there has been a gradual upward trend for all countries in the proportion of employment in small and medium units, although the shifts are small.

These shifts may be related to changes in the composition of the industries that make up these national economies. As manufacturing firms and establishments tend to be larger than those in services, a trend toward smaller units may reflect a nation-wide de-emphasis on manufacturing. To test this hypothesis, the same analysis is repeated for only those firms and establishments in manufacturing. Again, for most countries, there seemed to be a slight upward shift in the share of jobs in small and medium sized firms and establishments since 1970. In some respects, this shift appears more significant for manufacturing than for the total economy. Hence, the shift can be considered generic, affecting all industry sectors in these economies.

This demonstrates that direct cross-national comparisons can provide useful information. On the other hand, there are substantial differences in the average values for each national trend. The manufacturing job share of small and medium firms in the U.S. is about 30%, compared to over 60% for Japan, Germany, and Italy. Without comparable measurement procedures for all countries, there is no way to know how much of this difference is due to differences in measurement (identification of establishments, counting employees, classifying sizes) or differences in the way manufacturing is organized. Both probably contribute to this variation.

This limitation is not inherent in the phenomena; it could be ameliorated by cross-national standardization of data collection and coding procedures. As this is unlikely to occur in the near future, a number of important issues must be explored by other means.

B. *Cross-national historical/time series correlations*

There may be considerable potential for cross-national comparisons based on historical or time-series comparisons. The basic strategy is to consider an entire economic system or society and examine changes in basic attributes as well as the temporal order of these changes.

General historical comparisons. One strategy has been to consider societies using a long range historical perspective. One comparative analysis focused on six countries in periods specified in Table I (Wilken, 1979, p. 35). The "takeoff periods" refer to increases in the rate of economic growth. Entrepreneurial activity generally increased during these takeoff periods.

The analysis, based on historical documents, led the author to conclude that increases in entrepreneurial activity were generally reflections of improvements in both national economic and non-economic factors. Economic factors were considered to include capital, labor, raw materials, technology, and market expansion. It was assumed that when all were present, there would be relatively low risks for entrepreneurship. Non-economic factors were considered to include legitimacy of entrepreneurship, opportunity for social mobility, ideology, and the potential to resolve status incongruence and achieve status recognition through entrepreneurship. As most

TABLE I
Historical periods of Analysis and "takeoff" periods

Country	Analysis period	Takeoff period
Great Britain	1750—1815	1783—1802
France	1789—1910	1830—1860
Prussia-Germany	1815—1875	1850—1873
Japan	1868—1927	1878—1900
United States	1810—1880	1843—1860
Russia	1800—1917	1890—1914

increases in entrepreneurial activity in these six countries occurred when both economic and non-economic conditions were favorable, usually during periods of high economic growth, it was concluded that entrepreneurial activity generally had no independent causal impact on economic growth. There were historical circumstances, however, (Germany before 1850) in which the absence of entrepreneurial activity was considered to retard economic growth.

The most significant causal influence in this analysis was government action, seen as having a major effect on both economic and non-economic conditions that affected the presence of entrepreneurship. Entrepreneurial activity was also considered a major factor in socio-economic change and growth, but primarily as a mediating factor reflecting government policies.

Recent time-series analysis. A more precise analysis has been provided for the United States focusing on rates of incorporation from 1948 to 1984 (Highfield and Smiley, 1987). Two issues were approached. The first was the national factors affecting changes in entrepreneurial activity. The second was the effect of entrepreneurial activity on subsequent national economic well-being. This was done by dividing 1948—1984 into 118 three-month periods (quarters). Annual rates of new incorporations were used as an indicator or entrepreneurial activity. Five factors were considered to have influenced or to have been influenced by changes in incorporation rates: real gross national product (GNP) growth, real plant and equipment expenditures growth, unemployment rate changes, real interest rate, and inflation.

The procedure was to consider the correlations between these variables and changes in incorporation for 118 time periods. One analysis considered changes prior to the quarter in which incorporation rates were measured; the second considered changes subsequent to changes in incorporation rates. The leading (precursor) correlations between these measures 6—9 months prior to the period in which incorporation rates were measured were about 0.4 for growth in plant and equipment expenditures, and unemployment, about zero for interest and inflation, and about −0.3 for GNP growth. For the 6—9 months lagging (following) the period of incorporation, GNP growth and plant and equipment expenditure growth had positive correlations of about 0.3, correlations with inflation and interest were about zero, and unemployment change had a correlation of about −0.4.

It is quite possible that the changes in the five aggregate characteristics are not independent (autocorrelated). Attempts to explore this possibility through multi-variate analysis found that only the inflation rate appeared to have a causal role affecting entrepreneurial activity. As inflation declined, entrepreneurial activity increased. There was some small additional contribution to explained variance if real GNP growth and unemployment were also included. An analysis of several recent time series studies of the United Kingdom suggests a somewhat stronger relationship between national unemployment and self-employment than found in the U.S. (Storey, 1990).

Overall, Highfield and Smiley conclude that ". . . sluggish economic growth seems more likely to spur creation of new firms . . . , however, . . . none of the macro variables appears to be strongly causal . . . . Policy implications are not strong in this setting" (Highfield and Smiley, 1986, p. 57). The authors go on to say, reflecting on the lagging patterns, that "[what] is apparent, however, is an indication that higher incorporation growth goes hand in hand with an economy changing from worse to the better. This might suggest further incentives for new business formation could speed recoveries, but we have made no attempt to examine causality in this direction" (Highfield and Smiley, 1986, p. 57).

This analysis, restricted to the U.S., is presented as an example of the type of time-series multivariate analysis of the role of entrepreneurship in economic change that may fruitfully be pursued at the national level. The same analysis could be applied to any country, large or small, with reasonable data over a long period of time — a long enough period to provide for multiple data points for the correlational and multivariate analysis. Applications might involve comparisons that would include smaller, less diverse nations (Singapore, Belgium, Switzerland, etc.). This is an appealing strategy for increasing the breadth of comparisons.

If the unit of analysis is to be an entire country, the potential for cross-national comparisons using

comparisons of patterns in historical data series (using anything from decades or three-month periods as the unit of analysis) is promising. Such comparisons seem most suited to attending to the most general factors affecting new firm formation and the effects of new firms on economic growth and change.

C. *Cross-national cross-market comparisons*

Most countries have an active exchange between buyers and sellers for a wide range of similar products (transportation, food, clothing, housing, medical care, etc.). Models for a cross-industry or cross-market analysis can be developed for a single country. A cross-national cross-market analysis would involve comparing such models for different countries. For example, the characteristic of an industry that affects the tendency for new actors — entrants — to produce a good or service can be examined for a variety of different countries. New entrants in an industry could reflect either a shift in focus of an existing firm or a new firm founded to compete in that industry. The dependent variable, a new producer in the industry, may reflect more than new firm births.

TABLE II
Empirical estimates of entry determinants for six countries[a]

	UK	FRG	Norway	Portugal	Belgium	Korea
No. of industries	95	79	141	73	109	62
Explained variance	0.15—0.21	0.38	0.77	0.78—0.59	0.10	0.20
Summary of variables retained in multiple regression models[b]						
Expected profits	+[c]	+	+	+[d]	−, NS[e]	+
Industry size	+, NS	−	+	+		
Industry growth	−[c]	+	+, NS	+	+	+
Scale economies		−	+	−	+	−
Product differentation, advertising		+		−[d]	−	−
Capital requirements			−	−[d]	−	−, NS
Concentration			−			+
Sunk cost			−			
Equipment life				−[f]		
New purchases				−[f]		
Exit rate			+			
Risk			+, NS			
Patents, R & D				−[d]	+	
Diversification				−[d]		
Price-cost margin with FRG industry					+	
Growth of EEC					+	

[a] From Tables 3 and 4 of Cable and Schwalbach (forthcoming).
[b] Shows typical result of standardized beta weights included from one or more regression models statistically significant at 0.10 or better; NS indicates that factor was not significant for at least one of several regression models.
[c] Not statistically significant for foreign entrants.
[d] Not statistically significant for large entrants.
[e] Entry responsive to European wide opportunities, indicated by German profits.
[f] Not statistically significant for small entrants.

Such a comparison was completed for Belgium, Canada, the Federal Republic of Germany, Korea, Norway, Portugal, the United Kingdom, and the United States (Cable and Schwalbach, forthcoming). Regression models were developed to predict entry of new producers into selected industries (markets). While the major factor expected to have an impact was the expected (predicted) profitability after entry into the market (Orr 1974a, 1974b), a number of other market or production characteristics (industry size, growth, and scale economies) were included in some models.

A comparison of the results of these models for six countries (excluding Canada and the United States) is provided in Table II. This table summarizes the results of several models for some of these countries (predicting small entrants, large entrants, foreign entrants; using different measures of entry, etc.). The first row provides the number of industries included in the analysis, which ranges from 62 to 141. Almost all of these are manufacturing. The second row provides a measure of how well the models for each country fit the empirical observations; the explained variances vary from 10% to 78%. The remainder of the table is a summary of the signs associated with standardized beta weights that were developed in the models.[5] Only those with a statistically significant standardized beta weight (at the 0.10 level) are included in Table II. Not all of the potential independent variables were included in analyses for all countries.

The general pattern of relationships is quite mixed. A summary of the number of statistically significant positive and negative standardized beta weights for factors included in four or more of the six analyses reflects this diversity:

	Number Positive	Number Negative
Expected profits	5	1
Industry growth	5	1
Product differentiation, advertising	1	4
Scale economies	2	3
Industry size	3	1
Capital requirements	—	4

The only factor with the same impact in all analyses was capital requirements; higher capital requirements was found to depress entrants in four countries. Four factors had the same effect in all but one analysis: greater expected profits, industry growth, industry size, and less product differentiation and advertising all tended to increase new entrants. The effect of scale economies in the industry was mixed, with greater scale economies depressing entrants in three analyses and encouraging entrants in two.

This is, none-the-less, a very informative analysis. The mechanisms that link market characteristics to rates of new entrants into manufacturing industries are similar for these six countries. This is despite substantial variation in the structure of these market economies and utilization of disparate operational definitions (for measuring market characteristics and entrants into the market).

Such an approach could be adjusted to explore — cross-nationally — the effect of different levels of new entrants on market characteristics, such as average profitability or strategies taken by incumbents to maintain market share (more advertising, introduction of new products, etc.). Further, the range of countries involved in the analysis could be extended to include any with national level data on a wide range of industries (markets). It would be important to have similar conceptual definitions of most variables, although the operational definitions or specific indicators may vary.

This conceptual scheme and approach, which has substantial benefits for the study of markets, has major limitations for other issues. In particular, the relationship between the character of the markets, including the level of turbulence (entrants and exits), on national economic well-being is difficult to explore with a cross-industry regression modeling strategy.

D. *Cross-national cross-regional analysis*

Attending to the relationship between the character of the business organizations that make up an economy and the economic well-being of the complete system requires a different strategy. It leads to considering a geographically diverse economy as a set of regional economies. Each regional economy is considered as an independent entity for the analysis.

This strategy is to be most fruitful if region

geographical boundaries can be considered to delimit a socio-economic system and there is uniform data available for the major variables of interest. Such conditions exist for the Unites States. They were critical to an analysis of the effect of business volatility on subsequent economic well-being (Reynolds and Maki, 1990). The sub-national region in this study was the labor market area. The labor market areas represent aggregations of the 3,124 U.S. counties on the basis of travel-to-work patterns reported in the 1980 Census of Population (Tolbert and Killian, 1987). There are 382 travel-to-work based labor market areas. One third involve counties in two or more states. The 1980 population ranges from twelve million (New York City and Los Angeles) to one hundred thousand (northeast corner of Arizona). They are presented in Figure 1.

Exploring the effect of establishment births on economic growth involves identifying a measure of regional economic change and suitable measures of business birth. Changes in total jobs, total labor income, and total property income (rent, dividend, and interest) for each labor market area serve as measures of economic well-being. As annual changes in these measures of economic well-being from 1969—1986 had low and unstable correlations (from 0.3 to 0.8), all three were used as measures of regional economic change.

Data on establishment births and deaths were developed from specialized data sets prepared from the U.S. Small Business Administration Small Business Data Base. This data base is a highly edited and cleaned version of the Dun and Bradstreet Dun Market Identifier file, a commercial credit rating data base that provides, at any one time, a reasonably accurate census of all business establishments. However, it also includes data that allows the establishments to be aggregated into enterprises (firms). Of the five million establishments in the file, approximately 3 million are single establishment (site) enterprises. The remaining two million are aggregated into about half a million firms. The U.S. SBA obtains access to the complete file for the U.S. every two years and is able to estimate births (new appearances

Fig. 1. Labor market areas of the U.S.

in the file) and deaths (disappearances from the file) of establishments in 75 two-digit Standard Industry Code categories for each U.S. county (U.S. Small Business Administration, 1988).

Because the data on the hierarchical structure of ownership is also known, it is also possible to determine whether each establishment is autonomous (single site firm or a headquarters) or a branch owned by a headquarters. Autonomous establishments (about 80% of the total) are assumed to be responsive to the regional economic conditions more than branches owned by a headquarters outside the labor market area. Over 95% of autonomous establishments are owned by firms with less than 100 employees; two-thirds of all branches are owned by firms with more than 100 employees.

Three analyses suggested that autonomous firms had a substantial role in causing economic growth or improved well-being. First, autonomous firms provided about 55% of all job gains (from births and expansions) over the 1976—86 period. They were also responsible for about 55% of all job losses (from deaths and contractions). (Note this is a different measure than the proportion related to net job change, frequently used in research summaries (Kirchhoff and Phillips, 1988).)

Second, correlations of measures of birth *and death* rates with subsequent economic growth were computed for four time periods (1976—78 to 1978—80, 1978—80 to 1980—82, 1980—82 to 1982—84, 1984—86 to 1984—86). These correlations tended to be moderately positive (0.2—0.4). The correlations are higher for autonomous firms than for branch birth rates. The correlations are higher for birth than death rates. As correlations were positive for both establishment birth and death rates, the emphasis was shifted from birth rates to volatility (or turbulence). Business volatility was considered to reflect the impact of establishment births, deaths, expansions and contractions.

The third major source of evidence was the result of partitioning the variance associated with regression models used to predict labor market area economic growth (measured by jobs, labor income, and property income). In general, about half of the variance in subsequent economic well-being could be explained by these models. Regional characteristics accounted for about one-eighth of the explained variance, business volatility for about one-fifth, and the remainder (about two-thirds) was associated with the interaction effect. As all independent variables were measured prior to the periods of economic change, this provides strong evidence that business volatility has a major causal impact on subsequent economic well-being (jobs, labor income, and property income changes).

Example: USA and Japan. An example of cross-national comparisons can make use of current data on the births and deaths of manufacturing establishments in Japan. Data from the U.S., described above, is organized to maximize comparability with the Japanese data. Only the correlations between measures of business births and deaths in manufacturing and subsequent economic well-being will be utilized in this analysis. The critical features, reviewed in Table III, are similar, but not identical for the two analyses.

Figure 2 presents the 47 prefectures of Japan. The U.S. labor market areas were presented in Figure 1, above. Figure 3 indicates the proportion of 1980 employment in manufacturing for each U.S. labor market area, indicating the relative importance of manufacturing to the area economy.

The Japanese prefectures, Figure 2, with the greatest population are Tokyo, Osaka, and Aichi (Nagoya is the capital). They also have substantially greater manufacturing activity than the other prefectures. Figure 3 indicates that manufacturing is present in all 382 U.S. labor market areas, representing from 3% to 52% of all 1980 employment. Labor market areas with a high proportion of manufacturing employment are located across the North Central, New England, and Mid South labor market areas. Very few of the major metropolitan areas have high concentrations of manufacturing employment; the highest proportions occur in southern rural areas with an absence of other industries.

The correlations of variation in manufacturing establishment birth, death, volatility (birth plus death), and net increase rates with subsequent prefecture or labor market area economic well-being are presented in Table IV. The correlations of birth and death rates are shown in Table V.

General patterns were found in both Japan and

TABLE III
Features of Japan/U.S.A. comparison

Feature	Japan	U.S.
Sub-national region	Prefectures: National government administrative areas	Labor market areas: Counties aggregated on basis of the commute to work
Manufacturing	Japanese classification	U.S. (SIC) classification
Establishments	All establishments combined	Autonomous firm establishments separated from branch establishments
Birth rates	New establishments per existing	New establishments per existing
Death rates	Discontinued per existing	Discontinued per existing of same type (Autonomous or branch)
Economic well-being	Growth in per capita income for region	Growth in total labor income for region
Time periods	1976—79 predict 1979—80 1980—83 predict 1983—84 1983—85 predict 1985—86	1976—78 predict 1978—79 1978—80 predict 1980—81 1980—82 predict 1982—83 1982—84 predict 1984—85

the U.S. First, that the variables reflecting manufacturing establishment births and deaths as well as economic growth across the prefectures and labor market areas are normally distributed (not shown). Second, that manufacturing establishment birth, death, volatility, and net increase rates tend to have positive correlations with measures of subsequent economic growth. Third, that birth and death rates tend to be positively correlated. This would suggest that the same fundamental features of the economic systems of these two countries are similar.

The significance of turbulence is revealed in Table V, which shows the correlations of birth and death rates. They are positive for all time periods in both countries. This illustrates an important aspect of new firm formation; new establishment foundings are one aspect of the redeployment of resources (entrepreneurs, employees, capital, physical facilities) reflecting a change in the economic structure. High birth rates are associated with high death rates; economic growth is greatest where both are present.

There are, however, some differences in these patterns. First, as shown in Table IV, in the U.S. correlations of birth, death, volatility, and net increases with economic growth are higher for autonomous establishments than branch establishments. The correlations for Japanese birth, death, volatility, and net increases are approximately equal to those of U.S. branch establishments. Second, the economic change correlations for the U.S. are relatively constant across this time period (1976—84). The correlations of birth, death, and volatility rates with economic change for Japan get smaller over this time period (1976—85); the net increase in establishments/per capita income correlations get larger over this time period (1976—85). Third, as shown in Table V, the correlations of birth and death rates are curvilinear for the U.S. — increasing from 1976—78 to 1980—82, declining thereafter. The correlations show a steady decrease for Japan for 1976—85.

These differences suggest that the role of manufacturing establishment volatility in affecting changes in total labor income is greater for auto-

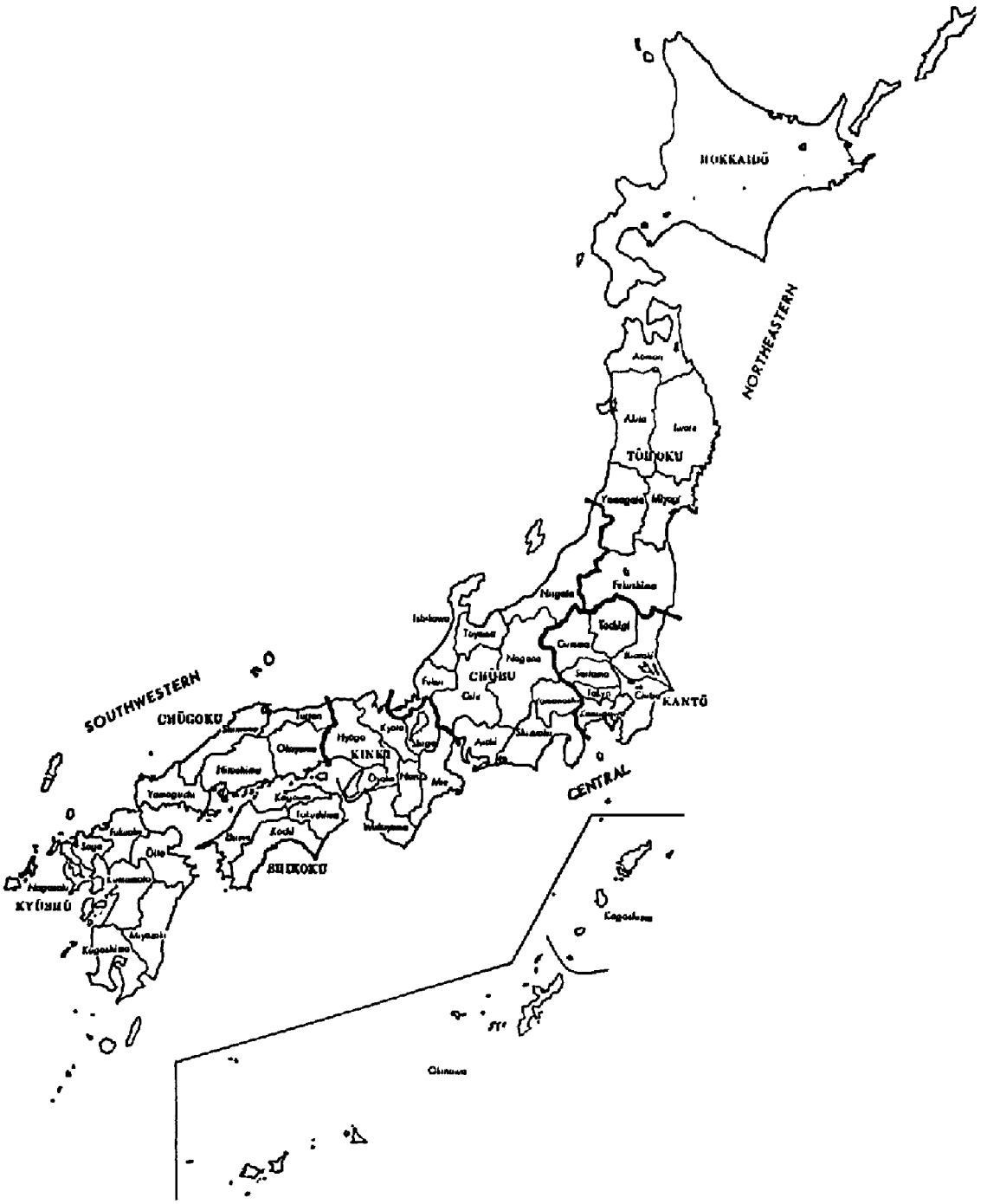

Fig. 2. Japanese prefectures.

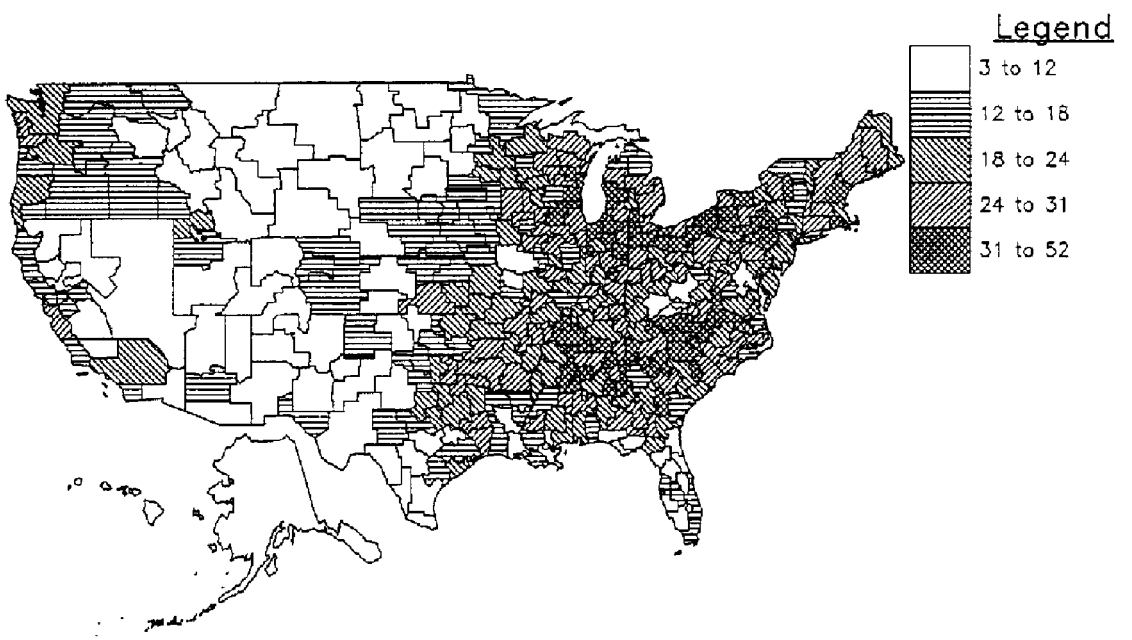

Fig. 3. Manufacturing emphasis in labor market areas of the U.S.

nomous firms than for branches in the U.S. This relative significance has not changed over the 1978—86 period. In contrast, the significance of manufacturing establishment changes affecting per capita income may be decreasing in Japan.

If the birth/death rate correlations are considered indicators of the presence of turnover, turbulence, or redeployment, this seems to be decreasing in Japan and recently decreasing in the U.S. However, this pattern for manufacturing establishments is in sharp contrast for the all-industry trend in the U.S., which shows a steady, substantial increase in birth/death rate correlations (Reynolds and Maki, 1990, p. 36). If birth/death rate correlations are considered indicators of the presence of volatility (or turbulence or redeployment), volatility may be decreasing in Japan.

This analysis has demonstrated the value of using cross-regional patterns in making cross-national comparisons. Despite substantial differences in the measures of most variables in the analysis, there are some basic similarities found in the Japan—U.S. comparison. The birth, death, and volatility measures associated with manufacturing establishments tend to have a positive relationship with subsequent economic well-being (represented by personal income). In addition, there is evidence of a moderation of this relationship in Japan, suggesting that changes in other industries may be increasing their impact on prefecture economic growth. In the U.S., the evidence suggests a recent decline in turbulence in the manufacturing sector.

For issues associated with cross-national analysis of the role of business volatility in economic change, this strategy appears to have considerable merit.

III. Overview: Major issues and strategies for cross-national comparisons

If the same conceptual definitions and same measurement procedures were used for all variables of interest (economic growth, firm size, market entry, income, etc.) then cross-national comparisons would be elementary. This is not the

TABLE IV
Manufacturing establishment volatility and economic growth: Japan and U.S. compared

Japan: Predicting per capita income changes			U.S.A.: Predicting total regional labor income changes			
Predicting		Correlation[a]	Predicting		Correlations[a]	
From	to	All establishments	From	to	Autonomous[b]	Branches[c]
Birth rates						
76–79	80–81	0.13	76–78	78–79	0.25	0.12
80–83	83–84	0.12	78–80	80–81	0.14	0.26
83–85	85–86	0.08	80–82	82–83	0.31	−0.06
			82–84	84–85	0.27	0.20
Avg		0.11	Avg		0.24	0.13
Death rates						
76–79	80–81	0.13	76–78	78–79	0.11	0.11
80–83	83–84	0.05	78–80	80–81	0.05	−0.08
83–85	85–86	−0.06	80–82	82–83	0.15	0.20
			82–84	84–85	−0.14	−0.09
Avg		0.04	Avg		0.04	0.03
Volatility						
76–79	80–81	0.14	76–78	78–79	0.25	0.15
80–83	83–84	0.12	78–80	80–81	0.12	0.05
83–85	85–86	0.02	80–82	82–83	0.28	0.16
			82–84	84–85	0.22	0.10
Avg		0.09	Avg		0.22	0.11
Percentage increase						
76–79	80–81	0.06	76–78	78–79	0.19	0.09
80–83	83–84	0.10	78–80	80–81	0.11	0.28
83–85	85–86	0.13	80–82	82–83	0.15	−0.08
			82–84	84–85	0.21	0.22
Avg		0.10	Avg		0.17	0.13

[a] As both data sets represent the entire population, there is no sampling error. Hence, statistical significance has no meaning and is not provided.
[b] Single site firms, headquarters, or branches with headquarters in the same country.
[c] Branches of headquarters located outside the same county.

current state of affairs and is unlikely to occur in the foreseeable future. This situation has led to exploration of four different strategies for cross-national comparisons related to the role of entrepreneurship in national economies.

When very general issues are the focus of attention, so general that differences in measurement are unlikely to affect conclusions, *direct comparisons* can be fruitful. Comparisons of the relationship between national government policies, the growth of entrepreneurship, and national economic growth of six countries during the 1800s suggested that changing national policies simultaneously fostered both entrepreneurial activity and national economic growth. A review of the patterns found in the past several decades among selected industrialized countries suggested that small and medium firms are increasing in importance in all economies, accounting for a greater share of employment.

When reliable and consistent data is available on a variety of variables for a period of years, time-series models may be used to study the changes occurring in a single economy. *Cross-national time series comparisons* may then be used to explore differences in the resultant models.

TABLE V
Correlations of manufacturing establishments birth and death rates: Japan and U.S.A.

Japan		U.S.A.		
Period	Corelation	Period	Correlations	
	All establishments		Autonomous	Branches
76—79	0.67	76—78	0.21	0.09
80—83	0.39	78—80	0.23	0.04
83—85	0.40	80—82	0.34	0.15
85—88	0.20	82—84	0.30	0.11
		84—86	0.21	0.01
Avg	0.42	Avg	0.26	0.08

While no formal comparison was provided, an informal comparison of the U.S. and the U.K. suggested a greater impact of unemployment on new firm formation in the U.K.

The wide range of industries in most advanced economies allows for cross-industry regression models to be developed for a single country. A *cross-national cross-industry* comparison indicated that the same conceptual scheme was fruitful for six selected industrialized countries. However, the nature of the underlying processes appeared to show some variation for different countries; there were few independent variables with the same impact on firm entrance in all six countries.

When data is available for a wide range of sub-national regions, *cross-regional cross-national* comparisons are possible. An example comparing the impact of manufacturing firm births and deaths on subsequent economic well-being in Japan and the U.S. indicated similar patterns in both countries. Higher manufacturing births preceded increases in regional income.

A summary of the relationships between research issues and research strategies is presented in Table VI. The columns represent the four research strategies: direct comparisons, comparisons of historical/time-series correlations, comparisons of cross-market models, and comparisons of cross-regional models. Research issues are presented in the row, identified in the right hand column. An *X* has been placed in the row/column intersections representing a judgement regarding the optimal research strategy for the current status of data.

In general, direct comparisons are most useful for the most basic issues: situations where the underlying differences are so robust that variations in measurement procedures will not mask actual differences. Crude estimates of the differences in economic well-being of market and centralized economies and the relative role of entrepreneurship are one example of such an analysis. Another is the differences in the proportion of small and medium manufacturing firms in different sized countries.

Most social and economic phenomena, however, are the culmination of a diversity of processes and mechanisms. A fuller understanding of the phenomena generally requires the capacity to measure not only variables but their association with some precision. Measures of associations between variables representing the same economic system at different points in time is one alternative. This method can be used to explore the relationship of shifts in one characteristic, e.g., unemployment, with later changes in other characteristics, e.g., incorporation rate. This can be a valuable contribution, but limited by the small number of variables that can be included in the analysis.

Issues related to the reciprocal relationships between entrepreneurial activity and market (industry) characteristics can be profitably explored with cross-market regression models. This capacity will be enhanced as more countries assemble detailed data on industries other than manufacturing. While manufacturing is a basic industry, it still does not provide the majority of employment and Gross National Product for most countries.

The most suitable research strategy for exploring both (1) the impact of economic conditions, infrastructure, values, and culture on entrepreneurial activity; and (2) the effect of entrepreneurial activity on economic growth and change appears to be a cross-regional analysis. In large countries, there will be substantial variation in most of the major variables. The only complication is the presence of appropriate data on entrepreneurial activity and regional characteristics as the appropriate sub-national level. Only a few advanced countries appear to have developed such data (Canada, Japan, U.S., UK). Remarkably, there are many countries, even in Western Europe, that do not have sub-national annual data

TABLE VI
Cross-national analysis strategies compared

	Direct	Time-series	Cross-market	Cross-region
Research issues				
Size distribution of firms				
One period	X			
Changes over time	X	X		
Factors affecting new firm foundings (or size distribution of firms)				
Competitive market (industry) characteristics			X	
Complementary market (industry) characteristics		?	?	
National economic conditions		X		
Industry economic conditions			X	
Regional economic conditions				X
National infrastructure		X		
Industry infrastructure			X	
Regional infrastructure				X
National values, culture		X		
Industry values, culture			X	
Regional values, culture				X
Effect of new firms on markets				
Innovation			X	
Adaptation			X	
Profits			X	
Competitiveness			X	
Effect of new firms on economic well-being, growth				
Relative to other countries	X	X		
Relative to other subnational regions				X

on jobs and income, the most basic measures of regional economic well-being (Keeble *et al.*, 1990). The disadvantage of not having current data at the sub-national level is the reduction in detailed data on specific industries. Much of the data is available at only the one-digit industry level (e.g., U.S. census of population employment by industry).

IV. Conclusion

This review has focused on the diversity of strategies available for cross-national comparisons involving entrepreneurship. The major conclusions are that (1) there are a large number of strategies available for cross-national comparisons; (2) no one strategy is optimal for all intellectual questions or research issues; and (3) most intellectual issues can be pursued cross-nationally, even when there is diversity in the measures used for the major concepts.

Hence, the current research strategies allow for substantial progress to be made on cross-national study of a wide range of entrepreneurial, small firm issues. The major purposes for cross-national research, discussed in the introduction, were: (1) increasing empirical support for general, abstract theories; (2) understanding the role of differences in entrepreneurial activity in differences in national economic well-being; and (3) providing information regarding government policies and programs that encourage entrepreneurship. Cross-national research on all three may be approached with optimism. But such research will require

joint, cross-national efforts. Scholars familiar with the data, economy, history, and geography of each country would be required to provide a meaningful interpretation of the variation within and differences between nations.

While this was not a systematic review of the empirical literature, there does appear to be a remarkable resemblance among advanced market economies. Regardless of the research strategy, the role and impact of entrepreneurial activities in advanced market economies appears quite similar. Major advances in understanding the significance3 of entrepreneurship may come from major variations in the independent variable. That is, systematic comparisons of entrepreneurial phenomena in market (decentralized) and government coordinated (centralized) economies. This would be of particular value now that many nations with centralized economies are shifting to a market or decentralized system. A change in the role of entrepreneurial activity will be one important aspect of this economic change; these shifts will provide an unprecedented and unique opportunity to explore the role of entrepreneurship in the creation of a market system. This inventory of research strategies may assist in developing such comparisons.

Notes

[1] Original research on the U.S. discussed in this paper is from projects, conducted with Professor Wilbur Maki of the University of Minnesota, sponsored by the U.S. Small Business Administration (contract SBA 3067—OA—88) and the Rural Poverty and Resources Program of the Ford Foundation. Professor Yoshio Sato of Keio University (Tokyo) provided the data on Japan.

[2] Summaries on the economic role of small firms in four of these countries have recently been completed for Italy (Invenizzi and Revelli, 1990), West Germany or FDR (Fritsch, 1990), the United Kingdom (Hughes, 1990; Storey, 1991) and the U.S.A. (Grey, 1990).

[3] Establishments are single locations where business activity takes place, firms are a single business legal entity. Most firms are single establishments, but most economic activity occurs in multiple-establishment firms, those with more than one physical location (site, installation, or plant).

[4] Firms may have one or more establishments; establishments may be a single firm or part of a multi-establishment firm.

[5] Standardized beta weights are those produced in multiple regression models when all variables are normalized (transformed to have an average value of zero and a standard deviation of one). The use of such standardization helps to overcome problems of comparability that may result when different measurement procedures are used in different data sets representing different countries. If the range of variables are the same in all countries and the same model is present in all cases, the same beta weights should be present despite differences in measurement procedures.

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