

Reynolds, Paul

**Working Paper**

## Entrepreneurship over Time: Measures of Activity and Recent Changes in the US: 1993-2002

Papers on Entrepreneurship, Growth and Public Policy, No. 4404

**Provided in Cooperation with:**

Max Planck Institute of Economics

*Suggested Citation:* Reynolds, Paul (2003) : Entrepreneurship over Time: Measures of Activity and Recent Changes in the US: 1993-2002, Papers on Entrepreneurship, Growth and Public Policy, No. 4404, Max Planck Institute for Research into Economic Systems, Jena

This Version is available at:

<https://hdl.handle.net/10419/19989>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



# 4404

**Entrepreneurship over Time: Measures of Activity  
and Recent Changes in the US: 1993-2002**

by

**Paul Reynolds**  
Florida International University – Miami, Florida, USA

**Number of Pages: 34**

The *Papers on Entrepreneurship, Growth and Public Policy* are edited by the  
Group Entrepreneurship, Growth and Public Policy, MPI Jena.  
For editorial correspondence,  
please contact: [egppapers@mpiew-jena.mpg.de](mailto:egppapers@mpiew-jena.mpg.de)

ISSN 1613-8333  
© by the author

Max Planck Institute for  
Research into Economic Systems  
Group Entrepreneurship, Growth and  
Public Policy  
Kahlaische Str. 10  
07745 Jena, Germany  
Fax: ++49-3641-686710

Entrepreneurship over Time:  
Measures of Activity and Recent Changes in the US: 1993-2002

Paul D. Reynolds

Florida International University – Miami, Florida, USA

24 April 2003

**Summary**

Data from three different research programs, all measuring the prevalence rate of new firm creation in the US adult population, suggest that from 1993 to 2002 the level of entrepreneurship may have increased up to three fold, from 4 to over 13 percent of those 18-74 years of age--a shift from one in twenty adults to one in six adults. In 1993 entrepreneurial activity was more prevalent than marriages or parenting, by 2001 it was twice as common as marriages and parenting combined. Current evidence indicates that the high level of participation in start-ups in 1999-2002 was not reflected in the presence of new firms, suggesting that a smaller proportion of start-ups made the transition to an operating business. This may reflect a “rush to entrepreneur” among those with insufficient preparation or resources to successfully launch a new firm.

**Is entrepreneurship on the rise in the US?**

The best available evidence suggest that in 2002, compared to 1993, the prevalence rate of those trying to start a new business may have tripled, from 4% of those 18-74 years old to 12%. This appears to be a general increase in participation among men and women, all ages, as well as all ethnic groups (white, Blacks, and Hispanics). These estimates suggest that as many as 24 million individuals may have been involved in entrepreneurial activity in 2000, over 17 million in 2001, and 16 million in 2002. In comparison, in 2001 about 8 million were involved in 4 million human births and 4.8 million involved in 2.4 million marriages, a total of 12.8 million.<sup>1</sup> As a societal activity, entrepreneurship may now involve twice as many adults as human births and marriages combined. There are substantial implications for public and educational policy as well as individual career planning.

The following assessment will first review the results of combining data from three different research programs spanning 1993-2002 to provide a nine-year comparison—based on a single survey interview question. The second section will review more sophisticated procedures that have been created to identify those actively engaged in starting a firm in which they will share ownership and identifying participation in different stages of the entrepreneurial process. The third section compares these measures of entrepreneurial activity with 5 measures of the presence of business activity in the US population. The fourth section will consider selected implications.

## DATA SOURCES

The sources of the data are three different research programs that have emphasized locating and estimating the proportion of the adult population engaged in starting new businesses. Two initial studies were conducted in 1993. The first, completed in winter and spring involved two surveys of representative samples of Wisconsin adults, treated as a single sample of 928.<sup>2</sup> Another sample in this initial period utilized a national pilot study incorporated into the ongoing University of Michigan Survey of Consumer Attitudes for October and November 1993, treated as a single sample of 1,000.<sup>3</sup> The second research program, now referred to as the US Panel Study of Entrepreneurial Dynamics [PSED] involved screening interviews completed from the summer of 1998 through winter of 2000 (a total of 62 samples of 1,000).<sup>4</sup> The third research program, part of a cross-national comparison of entrepreneurial activity, the Global Entrepreneurship Monitor [GEM], has involved 8 U.S. samples of 1,000 over the 1998-2001 period, and 7 samples of 1,000 were collected in 2002.<sup>5</sup> The same national survey firm [Market Facts--now Synovate--of Arlington Heights, IL] has collected all data after 1996, using a standardized sampling and interviewing procedure 77 times.

## TEMPORAL PATTERNS

Because the procedures used to measure the level of entrepreneurial activity have been under revision since first introduced in 1993, precise assessment of temporal changes is complicated. One and only one question has been asked of every adult participating in these 80 samples:

Are you, alone or with others, now trying to start a new business?

Over 99% of all respondents provided a yes or no response. Those that answered “yes” may be considered candidates for further questions about the details of this activity.

These enhancements, discussed below, provide a more precise estimate of the nature of their efforts to “start a new business.”

The percentage of those 18 to 74 years of age that responded “yes” is presented by year in Chart 1.<sup>6</sup> The mean and 95% confidence interval is shown for each year. Data is provided for 6 years, 1993, 1996, and 1998 through 2002. The combined annual sample sizes vary dramatically, from less than 2,000 to over 30,000; this is reflected in variations in the confidence intervals associated with each point estimate for the different years. Based only on this item, it would appear that there has been a substantial and steady increase in the level of business start-up activity, from 4% in 1993 to 7.5% in 1998-1999, over 13% in 2001, and a drop to 11% in 2002. Despite the variation in sample sizes, there is no question that this trend is statistically significant.

=====

Chart 1 about here

=====

The scope of the phenomena is more apparent when the estimated number of individuals is considered. Chart 2 translates the prevalence rates from Chart 1 into an estimated number of persons, based on counts of the total US adults 18-74 for each year. This ranges from 174 million in 1993 to 186 million in 2001. About 7 million would have said yes to the start-up item in 1993, growing to about 25 million in 2001, and declining to 20 million in 2002. As in Chart 1, the confidence intervals reflect the precision of these estimates, indicating that 95% of the samples drawn in 1993 would have a point estimate

between 5.2 to 8.7 million and 95% of samples drawn in 2001 would have a point estimate between 22.8 to 27.2 million.

=====

Chart 2 about here

=====

No matter how this is portrayed, it is clear there has been a substantial growth in activity.

It is possible that this growth reflects different tendencies of men and women or the old and young to get involved in business start-ups. Generally speaking, men are more active than women and young adults, those 25-44 years old, are the most likely to be involved in business start-ups. To determine if this overall increase reflected a change in age or gender subgroups, temporal comparisons by gender and age are presented in Chart 3 (men on the left) and Chart 4; with young adults (18-34 yrs) to the left, mid-career adults (35-54 yrs) in the middle, and older adults (55-74 yrs) to the right.

=====

Chart 3 about here

=====

=====

Chart 4 about here

=====

Detailed assessments of the samples drawn for PSED panel study revealed substantial differences among different ethnic groups in participation in the entrepreneurial process.<sup>7</sup> The prevalence rates over this period for whites, Blacks, and

Hispanics is presented in Chart 5. Ethnic background was not obtained for the 1996 sample, so no data is available for that year. The increase among white respondents is similar to that shown in Chart 1, rising from 4% in 1993 to over 12% in 2001. Among Black respondents, the rise is from 6% to 25%; among Hispanics it is from 2% for 1993 to 17% for 2001.

=====

Chart 5 about here

=====

All patterns related to gender, age, and ethnic background are similar to the overall pattern, the percentage that respond “yes” in 1998 and 1999 is about twice that of those responding “yes” in 1993; the percentage that respond “yes” in 2000 and 2001 is at least three times the level of those responding “yes” in 1993. There is a decline in all comparisons for 2002.

Finally, it is possible that the shift to a new survey research procedure in 1998 may account for the differences. There is, after all, similarity in the 1993 and 1996 prevalences, with a major jump in prevalence in 1998. All procedures utilized a random selection of US households for a phone interview. The major difference between procedures employed in 1993 and 1996, compared to those following 1996, was the selection of the adult in the household. Adults were selected at random from the household through 1996; up to 20 callbacks were made to complete interviews with these individuals. After 1996 the first qualifying adult that was willing to complete an interview was accepted—a household sample of convenience, and up to three calls were made to complete an interview.



Two reasons suggest that the increase was not related to changes in procedure. First, substantial operational evidence has accumulated that a higher call back criteria yields higher levels of entrepreneurial activity. Those engaged in entrepreneurial start-ups are extremely busy and difficult to contact by phone. A shift from a 20 call-back to a 3 call-back operating standard would have decreased the prevalence rate of entrepreneurial participation—perhaps by as much as one-third. Second, the same survey firm with the same sampling procedures collected all 77 samples after 1996. It is unlikely, then, that a change in research procedures is responsible for this dramatic increase in reported activity.

The level of self-reported participation in US entrepreneurial activity has grown three fold in the years between 1993 and 2001-2002. This increase is found among men and women, all age groups, and all ethnic groups—it seems to be a widespread increase in participation in entrepreneurial career options.

#### ALTERNATIVE MEASURES OF ENTREPRENEURIAL ACTIVITY

The procedures designed to identify those involved in new firm creation has become more precise with the development of this research agenda, reflecting a more complete portrayal of what is involved in business start-ups. Three basic strategies have been utilized. All reflect concern that a simple yes or no response to a single question may not provide an accurate indicator of efforts to create or implement a new business firm.

The initial strategy, employed by the two surveys in 1993, involved asking the respondent a series of additional questions if they said they were now active in a start-up.

It was assumed that only those that were doing things to implement a business—seeking financial support, scouting locations, developing marketing plans, hiring employees, saving money, and the like—could be considered “active nascent entrepreneurs.” A set of eighteen standardized “activity questions” were asked, along with the date when the activity began. Only those that appeared to be engaged in start-up activities were to be considered nascent entrepreneurs. It was discovered that 95% of those that answered yes to the initial item reported pursuing more than two activities in the past year. The average number of start-up activities was 6.7, with a range from 1 to 15. This suggested that most people that said they were now starting a business were actively engaged in a start-up effort.<sup>8</sup>

The next stage of the research program involved large-scale national screening to identify a substantial cohort of nascent entrepreneurs, to be tracked over time to determine their success and growth--the Panel Study of Entrepreneurial Dynamics [PSED]. The data collection involved locating candidates for a detailed interview and then completing a lengthy data collection effort. In order to minimize the screening costs, an established marketing research firm was retained for the screening phase [Telenations program of Market Facts, Inc.; Arlington Heights, IL]. It was desirable to minimize the screening interview time, by keeping the screening as short as possible for the large majority (over 80%) of typical adults that would not qualify as nascent entrepreneurs. Pretests indicated that a second screening item would increase the yield of “candidates for nascent entrepreneur” by 50%. This item was then added for all respondents:

“Are you, alone or with others, now starting a business for your employer? An effort that is part of your job responsibilities.”

This item can be considered a reflection of “corporate intrapreneurship”, although many of the respondents reflect small-scale business expansion (one successful restaurant starts another; one law firm expands by setting up a second office). Adding this item increases the “yield” by about 50%. The overall prevalence rates (BJOBST) shown in the middle of Chart 6 are generally about half that of the responses to the autonomous start-up item (BSTART), shown to the left of Chart 6.

=====

Chart 6 about here

=====

It is possible to add the responses to these two items to provide a measure of a wider range of business start-up activity, those sponsored by individual efforts and those sponsored by existing businesses. About 15%--one in six--of those that say “yes” to either say “yes” to both. In order to provide an estimate of the number of people involved in start-ups, individuals that answer “yes” to both are counted only once. The prevalence rates of those involved in either type of start-up (SUNENI) are presented on the right of Chart 6 for those years after 1993. The result, as might be expected, follows the same temporal pattern as for the previous measures, a major increase in the 1996 to 2001 period.

But to ensure that those that said they were involved in a firm start-up could be considered fully involved and active, two criteria have been added. First, those that claim participation in a start-up on their own or for their employer are asked if they had taken any action to implement a new firm in the past 12 months. They are provided a list of examples: talk to a bank about financing, preparing a business plan, looked for a site,

product development, creating a legal form, and the like. They were asked a second question to determine if they expected to own all or part of the new business. Only those that had been recently active and expected to share ownership were retained for the next phase. These individuals can be considered “two-criteria” nascent entrepreneurs (SUOWNACT). This is available for over 60,000 interviews completed in 1998 to 2000 and from GEM samples drawn in 1999, 2000, 2001, and 2002. The pattern of such respondents is presented to the left in Chart 7. The overall prevalence rates are somewhat lower than the combined measure (SUNENI) to the right of Chart 6, as about one third of the respondents are either not active or will not be owners. The pattern over time, however, is about the same; the prevalence rate for 2001 is about 80% higher than that for 1998.

=====

Chart 7 about here

=====

A third criterion is related to the stage in the entrepreneurial process and reflects the ambiguity associated with the phrase “start-up.” Those that are active and expect to be owners are asked if they have paid any salaries and wages to anybody--including the owners--for more than three months. If so, the effort may be considered to have passed beyond the gestation phase to become an operating business. Such a criteria is available for surveys completed for the Global Entrepreneurship Monitor [GEM] program, for 1999 through 2002, with a smaller sample than available from the large scale screening of the PSED project. The pattern of these “three criteria” nascent entrepreneurs (SUBOANW) over three years is presented on the right side of Chart 7.

The only years where the same sample is used for both estimates are 1999 to 2002; the three criteria measure (SUBOANW) tends to be slightly lower than the two criteria measure (SUOWNACT). While the four measures of SUBOANW are not statistically significantly different, the level is about the same for 1999 and 2000 and drops slightly, from 8.5 % to 6% for 2002.

The GEM interview schedules, however, included a third item related to current business management:

Are you, alone or with others, currently the owner of a company you help manage, self-employed, or selling any goods or services to others?

This item provided information about the level of current small business or self-employment activity. But it became apparent that many candidates for a “three criteria start-up” would qualify as managing a business--they were active and owners--but had paid salaries and wages for more than 3 months. In a similar fashion, it was found that many who claimed to be managing a going concern had never paid salaries and wages and would qualify as “nascent entrepreneurs.” Individuals that “misclassified” themselves in either category were reclassified into the correct stage of the entrepreneurial process. This results in an estimate of the prevalence rate of new firms, defined as those that have paid salaries and wages for 3-42 months. The prevalence rates (BABYBUSO) for 2000 to 2002 are presented in the center of Chart 8, the three criteria start-up rates (SUBOANW) from Chart 7 are repeated on the left of this chart. As show in the center of Chart 8, there is a drop of from 7% to 4% in the prevalence rate of new firms from 2000 to 2001 and little change to 2002.

=====

Chart 8 about here

=====

A final measure, very useful for cross-national comparisons, has been the Total Entrepreneurial Activity [TEA] Index. This is derived from counting individuals active as either nascent entrepreneurs or new firm owner/managers (and 6% quality as both). This then provides a measure of those active in the first two phases of the entrepreneurial process—start-up and new firms. The TEA index is available for 2000, 2001, and 2002 and is presented in the right side of Chart 8. There is a drop, from 13% to 9.5%, that appears to be statistically significant from 2000 to 2001; there is no significant change from 2001 to 2002. It is obvious, however, that this is largely a reflection of the drop in the proportion of individuals that appear to own and manage new firms, rather than a significant drop in the proportion of individuals active in the start-up process.

The actual number of people involved in different aspects of the entrepreneurial process for the different years is presented in Chart 9. These estimates, as before, are based on the counts of the adult population 18-74 for each year, which grows over time. As a consequence, the total counts show less decline than the prevalence rates, presented in Chart 8. It appears that about 15 million persons were involved in start-ups in 1999 and 2000, declining slightly to 13 million in 2001, and 11 million in 2002. There is a sharper decline in the numbers involved in new businesses, up to 42 months old, which dropped from 13 million in 2000 to 7.5 million in 2001 with a slight reduction in 2002. This drop in new firm activity is reflected in the drop in the TEA index, from 24 million in 2000 to 18 million in 2001 and 16 million in 2002.

=====

Chart 9 about here

=====

These seven measures of entrepreneurial activity are summarized in Table 1. Their relationship to each other can be considered by examining the inter-correlations among the seven measures. This is done by considering all samples where the same indicators are available. This ranges from 78 samples for both the independent startup and business sponsored start-up items to 12 samples where all 7 measures are available. The inter-correlations are presented in Table 2. It is clear that 6 of the measures are highly inter-correlated and one indicator, related to new firms, has a lower, though positive relationship, to this set of 6 start-up indicators. The three criteria measure of new firm prevalence (BABYBUSO) has a modest, though positive, correlation with the other 6 measures, which tend to reflect the presence of start-up efforts. On the other hand, it suggests that all seven measures are indicators of the presence of entrepreneurial activity and that if the three criteria start-ups and the TEA index had been measured in 1993 and 1996, the temporal patterns would have been about the same as with the single screening item.

=====

Table 1 about here

=====

=====

Table 2 about here

=====

There is, then, substantial evidence to suggest that these temporal changes, with a three fold increase in entrepreneurial activity in the US over the 1993-2002 period would have been found if more sophisticated survey interview procedures were used over the entire time period.

#### OTHER INDICATORS OF BUSINESS ACTIVITY

Such a substantial increase in start-up activity may be reflected in other aggregate measures of US business activity. Three broad categories are available, Table 3: the number of annual Internal Revenue Service business income tax filings;<sup>9</sup> self-reported measures of self-employment;<sup>10</sup> and the annual numbers of new firms with employees that are identified.<sup>11</sup> Three measures related to federal tax filings, based on all Schedule C filings (reflecting a business activity) with personal tax returns; the total number of partnership returns, and the total number of corporate returns. The first four, which reflect the total number of all operating business entities, can be expected to change slowly in reflection of major increases in new firm activity. Only the last--new firms with employees--could be expected to reflect a major increase in entrepreneurial activity, and then only after a time lag as the new businesses are included in the business registry.

=====

Table 3 about here

=====



These five measures, along with the seven measures of entrepreneurial activity reviewed above, are converted to prevalence rates of number per 1,000 adults 18-74 years of age in Chart 9.

=====

Chart 10 about here

=====

The five general measures, based on a complete census of all eligible cases and the number of new firms with employees through the year 2001, show remarkable stability over time. Self-employment, varied from 59 per 1,000 in 1993 to 53 per 1,000 in 2001. The birth rates of new firms with employees vary from 3.25 per 1,000 in 1993 to 3.31 per thousand in 2001. Filing of IRS schedule C, used by the full and part time self-employed rises from 91 per 1,000 in 1993 to 96 per thousand in 2001. Partnership tax returns increases from 8.4 per 1,000 to 11.6 per thousand; corporate filings increases from 23 per thousand to 30 per thousand. While some measures go up and some down, the variation over time is generally no more than 20-30% of the average value. These five measures suggest that the prevalence of business entities among the US adult population is a stable, slowly growing feature of the economic order.

The remaining challenge is to understand three issues. First, why are these survey-based measures of entrepreneurial activity showing so much variation, compared to indicators of the prevalence of current businesses based on censuses of all business activity? Second, why the relationship between measures of start-up activity and measures of new firm presence is not higher. Third, why has there been such an increase

in entrepreneurial activity over the 1993 to 2001-2002 period? Answers to these questions affect the implications of these findings.

#### BUSINESS PRESENCE AND ENTREPRENEURIAL ACTIVITY IN THE US

The results of a successful business start-up process would be new income tax filings, new firms with employees or reported self-employment. It maybe that the increase in entrepreneurial activity recorded in 1999 to 2001 has yet to be reflected in these other measures. The striking differences in the temporal patterns in Chart 10 suggest that none of the ongoing measures—income tax return filings, self-employment, or new firms with employees—yet reflect any major change from the survey based measures of entrepreneurial activity. The most likely candidate to show a response is the count of new firms with employees, yet the changes through 2001 are modest. An alternative interpretation, pursued below, is that the business start-up activity has increased as a popular fad, and that many of those participating are less qualified, have less support, and are less likely to complete the process with an operating business that would be reflected in measures of new firms with employees or among business income tax returns.

#### WHY IS THE START-UP NEW FIRM RELATIONSHIP SO LOW?

Although the relationship, a correlation of 0.65, between the prevalence rates of three-criteria start-up efforts (SUBOANW) and three-criteria new firms (BABYBUSO) is borderline statistically significant, it is low enough to lead to speculation that different factors may be affecting each part of the process.

Three transitions of the entrepreneurial process can have an impact on these two measures. The first transition occurs when a person, alone or with others, decides to enter into the start-up process. A number of factors could affect this transition--the “conception” of a new start-up. The second transition occurs when the start-up effort passes the threshold to become a new firm or the start-up team discontinues their efforts. The third transition occurs when the new firm no longer qualifies as a new firm. This could occur if the new business survives for more than 42 months--no longer qualifies as “new”-- or when the activity is discontinued--no longer qualifies as “in business.”

If the major contextual, structural, and individual background factors do not change—such that the proportion of those in the start-up process that launch a new firm, the time required to put a new firm in place, the proportion of new firms that survive from year to year (the percentage that are 1, 2, and 3 years old in the 0-42 months age group), and the proportion of start-ups and new firms in different industry sectors is stable--then the ratio of the prevalence rate of start-up efforts to new firms should be constant over time. This would be reflected in a high, positive correlation between measures of these two different stages in the entrepreneurial process.

Several aspects of the stages in this process may vary and reduce the correlation between the prevalence of start-ups and the prevalence of new firms:

1. The proportion of start-up team formation may change--go up or down
2. The time required to complete the start-up process and launch a new firm may change—grow or shrink
3. The proportion of start-up efforts that become new firms may change--go up or down
4. The proportion of new firms that survive to 42 months may change—go up or down

Or, of course, some combination of these events may also occur, reducing the correlation between the two prevalence measures. Considering the pattern in Chart 9, it would seem that the focus should be on a reduction in prevalence of new firms; a decrease in the proportion of successful transitions from a start-up effort to a new operating business.

It is, however, difficult to have a definitive statement regarding this relationship in the data, as there are only three years where data on both features are available. The drop in the prevalence rate of baby businesses seems to have occurred immediately after a major drop in the growth of GDP, which was a quarterly average of 4.8% in 1999, 2.8% in 2000, and 0.5% in 2001.<sup>12</sup> This reduction in activity could easily have led to a reduction in demand for the new firm's goods or services, an increase in businesses discontinuances, and a drop in their prevalence.

#### WHY IS THE 1993 TO 2001 INCREASE SO HIGH?

More difficult is to attempt to account for the dramatic rise in activity from 1993 to 2001 in start-up efforts—an increase that was found among men and women; all age categories; and major ethnic groups. Several of the more obvious factors would be the widespread attention given to entrepreneurship as an acceptable and desirable career option by government, political, and educational leaders; this has been associated with a substantial increase in the scope and visibility of programs and activities designed to encourage and help start-ups and new firms—provided at all levels of government. At the same time, the late 1990s was a time of highly visible mega-success among a small group of high technology and dot.com firms. A belief may have developed that start-ups were both an easy and a low risk career commitment—a fast track to wealth and prominence

with little downside cost. It is too early to tell if this “rush to entrepreneur” was associated with a lack of preparation and resources. It is also possible that late 1990s start-ups tried to complete the gestation process more quickly, launch new firms more quickly. Such “start-up window compression” could lead to less detailed preparation and planning. Both emphases would lead to a higher rate of start-up terminations and lower rates of transitions to new firms.

Nonetheless, this is strong evidence that entrepreneurial activity is fully integrated as a career option in the United States. This will continue to provide an economic system that is adaptative and providing constant competitive pressures on existing firms. This should increase the value of and demand for more entrepreneurial training in all levels of education, adjustments in government regulations and policies to reduce the “administrative burden,” and more favorable tax treatment of start-up and new firm financial matters. As more people get involved, they will expect a more “favorable” treatment from the public sector and may have the political mass needed to get attention.

ENDNOTES

- 
- <sup>1</sup> US Center for Disease Control, National vital Statistical Reports, Vol 50, No. 7 (March 27, 2002). 'www.cdc.gov/nchs'.
- <sup>2</sup> Data set is discussed in Reynolds, Paul D. and Sammis White (1997), The Entrepreneurial Process, Westport, CT: Quorum Books. This data set is available at the University of Michigan ICPSR archives as 6241.
- <sup>3</sup> This data set is also discussed in Reynolds, Paul D. and Sammis White (1997), The Entrepreneurial Process. Westport, CT: Quorum Books, and is available at the University of Michigan ICPSR archives as 6765 and 6766. Details of the procedures are described in Curtin, Richard (1982) "Indicators of Consumer Behavior: The University of Michigan Surveys of Consumers." Public Opinion Quarterly 46:340-62 and on the current Survey of Consumer Attitudes website: 'www.sca.isr.umich.edu'.
- <sup>4</sup> A review of the history of the first half of this program and the methodological procedures is provided in Reynolds, Paul D. 2000. "National Panel Study of U.S. Business Start-Ups: Background and Methodology." In Jerome A. Katz (Editor), Advances in Entrepreneurship, Firm Emergence and Growth, Vol 4, Stamford, CT: JAI Press, Pp. 153-228. More recent material on the Panel Study of Entrepreneurial Dynamics is available on the website: 'http://projects.isr.umich.edu/PSED'.
- <sup>5</sup> Two websites provide updates on the reports and procedures associated with this research program, 'www.gemconsortium.org' is maintained by the project coordination team at the London Business School; 'www.entreworld.org/GEM2001' is maintained by one of the major Global Sponsors, The Kauffman Foundation.
- <sup>6</sup> While most analysis have been done on those 18-64 years of age, reflecting the work force, this age range was expanded to 18-74 years for this analysis. This was done to increase the precision of the point estimates and reduce the confidence intervals as much as possible. Age was not provided for the one sample obtained in 1996, so this data point includes all respondents.
- <sup>7</sup> Green, Patricia, N.M. Carter, and P.D. Reynolds (forthcoming). Minority Entrepreneurship: Trends and Explanations. In C. Steyaert & D. Hjorth (Eds), New Movements in Entrepreneurship. London: Deard Elgar.
- <sup>8</sup> Details provided in Reynolds, Paul and Sammis White (1997). ), The Entrepreneurial Process. Westport, CT: Quorum Books, Chapter 3.
- <sup>9</sup> Corporate, partnership, and Schedule C (non-agricultural) tax filings taken from Statistical Abstracts of the US 1993, Table 827, 1999, Table 861 & 864, 2001, Table IRS Table 22 (02AL22SR.XLS at 'www.irs.gov/taxstats/display').
- <sup>10</sup> Annual measures of non-agricultural self-employment taken from US Department of Labor, Bureau of Labor Statistics, Employment Situation: May 2002, and Statistical Abstracts of the US 2001, Table 584, 1999, Table 666, and 1996, table 631.
- <sup>11</sup> Counts of new firm with employment births taken from Statistical Abstracts of the US 2001, Table 727, and U.S. Small Business Administration Office of Advocacy, (2001), Small Business Economic Indicators: 2000, Table 2.
- <sup>12</sup> See the national accounts data provide by the US Department of Commerce Bureau of Economic Analysis, 'www.bea.doc/bea/dn1.htm'.

Entrepreneurship over Time:  
Measures of Activity and Recent Changes in the US: 1993-2002

Paul D. Reynolds

Florida International University – Miami, Florida, USA

24 April 2003

**Tables and Charts**

Table 1 - Alternative Measures of the Entrepreneurially Active

Table 2 - Intercorrelations among Alternative Measures of the Entrepreneurially Active

Table 3 - US Business Activity: Selected Measures and Sources

Chart 1 - Proportion of US Adults responding "Yes" to Autonomous Start-Up Question

Chart 2 - Number of US Adults responding "Yes" to Autonomous Start-Up Question

Chart 3 - Proportion of US Adults responding "Yes" to Autonomous Start-Up Question:  
By Gender

Chart 4 - Proportion of US Adults responding "Yes" to Autonomous Start-Up Question:  
By Age Category

Chart 4 - Proportion of US Adults responding "Yes" to Autonomous Start-Up Question:  
By Ethnic Background

Chart 5 - Proportion of US Adults with Autonomous Start-Ups, Business Sponsored  
Start-Ups, and Combined

Chart 6 - Proportion of US Adults Meeting Two and Three Criteria for Active Start-up  
Participation

Chart 7 - Proportion of US in Start-Ups, New Firms, and Combined for Total  
Entrepreneurial Activity [TEA] Index

Chart 8 - Number of US in Start-Ups, New Firms, and Combined for Total  
Entrepreneurial Activity [TEA] Index

Chart 9 - Selected Measures of Business Activity: US 1993 - 2002

Table 1 – Alternate Measures of the Entrepreneurially Active

	VARIABLE LABEL	No of Samples	Sample Years	
One item, independent start-up	BSTART	80	1993-2002	Are you, alone or with others, currently trying to start a new business?
One item, business sponsored start-up	BJOBST	78	1996-2002	Are you, alone or with others, currently trying to start a new business for your employer?
Two items, start up candidate	SUNENI	78	1996-2002	BSTART or BJOBST.
Two criteria, start-up	SUBOWNACT	75	1998-2002	BSTART or BJOBST and: <ul style="list-style-type: none"> <li>• Active in start-up effort in past 12 months</li> <li>• Will own all or part of the business</li> </ul>
Three criteria, start-up	SUBOANW	13	2000-2002	BSTART or BJOBST and: <ul style="list-style-type: none"> <li>• Active in start-up effort in past 12 months</li> <li>• Will own all or part of the business</li> <li>• No salary payments for more than 3 months</li> </ul>
Three criteria, new firm	BABYBUSO	12	2000-2002	Are you the owner/manager of a business, including any form of self-employment and: <ul style="list-style-type: none"> <li>• Do you own all or part of the business</li> <li>• Have you paid any salaries for 3-42 months</li> </ul>
Total Entrepreneurial Activity Index	TEA	12	2000-2002	Count of 1 if SUBOANW or BABYBUSO or both (6%).



Table 2 - Intercorrelations among Alternative Measures of the Entrepreneurially Active

	One item, independent start-up	One item, business sponsored start-up	Two items, start up candidate	Two criteria, start-up	Three criteria, start-up	Three criteria, new firm	Two stage, TEA
Variable Label	BSTART	BJOBST	SUNENI	SUBOWNACT	SUBOANW	BABYBUSO	TEA
One item, independent start-up	1.00						
One item, business sponsored start-up	**0.85	1.00					
Two items, start up candidate	**0.96	**0.93	1.00				
Two criteria, start-up	**0.90	**0.80	**0.91	1.00			
Three criteria, start-up	**0.79	**0.80	**0.81	**0.90	1.00		
Three criteria, new firm	0.41	0.47	0.48	0.49	*0.65	1.00	
Two stage, TEA	*0.76	*0.72	**0.79	**0.82	**0.94	**0.85	1.00
Number of samples (maximum)	80	78	78	75	13	12	12

Statistical significance, two-tailed: \*-.01, \*\*-0.001.

Table 3 - US Business Activity: Selected Measures and Sources

Measure	Label [Chart 10]	Source
Total business returns filed as a Schedule C or CZ accompanying an individual tax return, Form 1040,1040A,1040EZ, and 1040PC..	IRS SchC	US Internal Revenue Service, Statistics of Income, Table 22: ' <a href="http://www.irs.gov/pub/irs-soi/03al22sr.xls">www.irs.gov/pub/irs-soi/03al22sr.xls</a> '.
Total partnership tax returns file, Forms 1065 and 1065B.	IRS Part	US Internal Revenue Service, Statistics of Income, Table 22: ' <a href="http://www.irs.gov/pub/irs-soi/03al22sr.xls">www.irs.gov/pub/irs-soi/03al22sr.xls</a> '.
Total corporate income tax returns for all types of corporations.	IRS Corp	US Internal Revenue Service, Statistics of Income, Table 22: ' <a href="http://www.irs.gov/pub/irs-soi/03al22sr.xls">www.irs.gov/pub/irs-soi/03al22sr.xls</a> '.
New Employer Firms for year: New firms based on filing of federal social security taxes.	SBA:FrmBrth	Table 3, U.S. Business Measures, 1975-2001. Office of Advocacy, U.S. Small Business Administration, Small Business Economic Indicators for 2001, Washington, D.C. February 2003.
Self-employment in the civilian labor force from Bureau of Labor Statistics.	BLS:Self-Emp	Table 3, U.S. Business Measures, 1975-2001. Office of Advocacy, U.S. Small Business Administration, Small Business Economic Indicators for 2001, Washington, D.C. February 2003.

Chart 1 - Proportion of US Adults responding "Yes" to Autonomous Start-Up Question

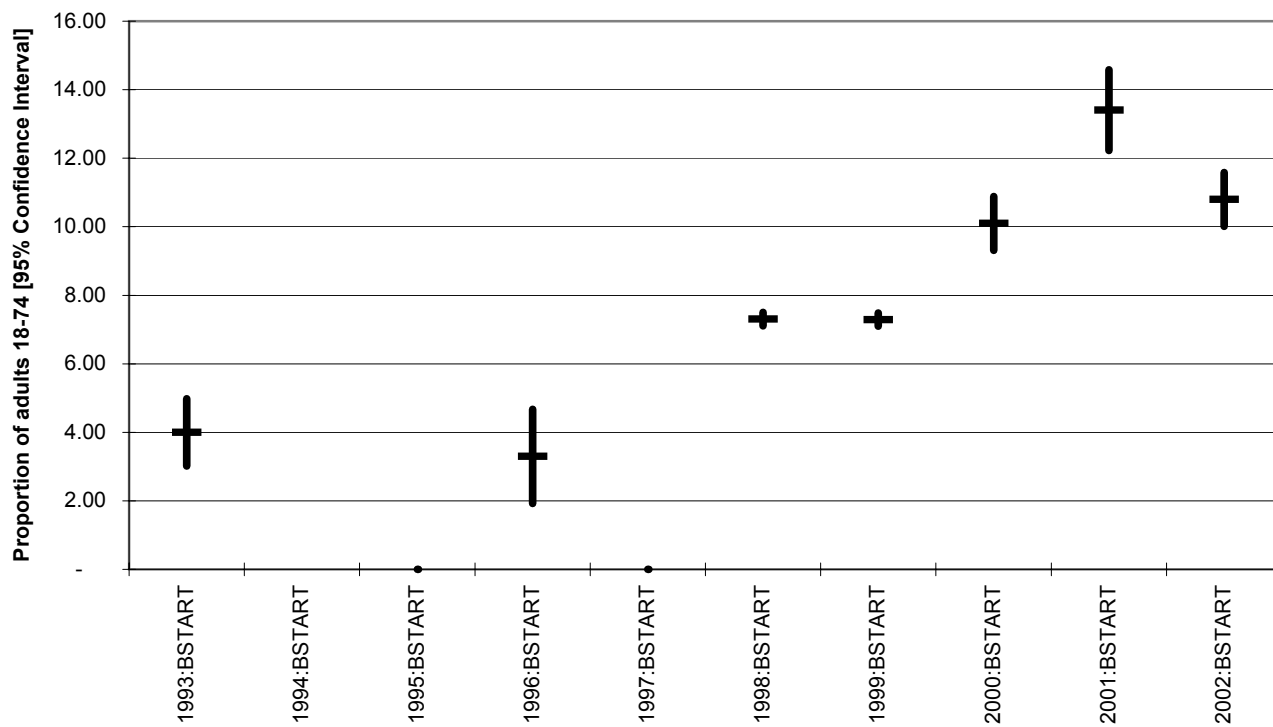
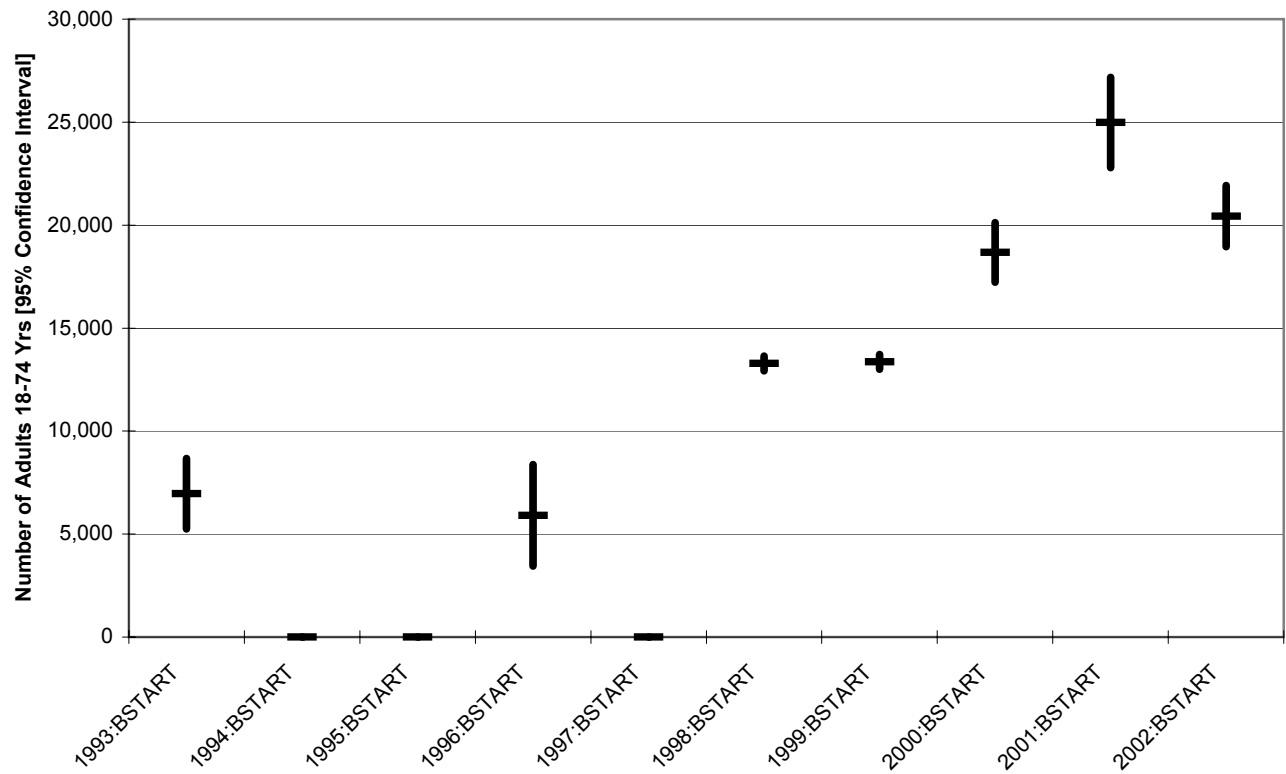
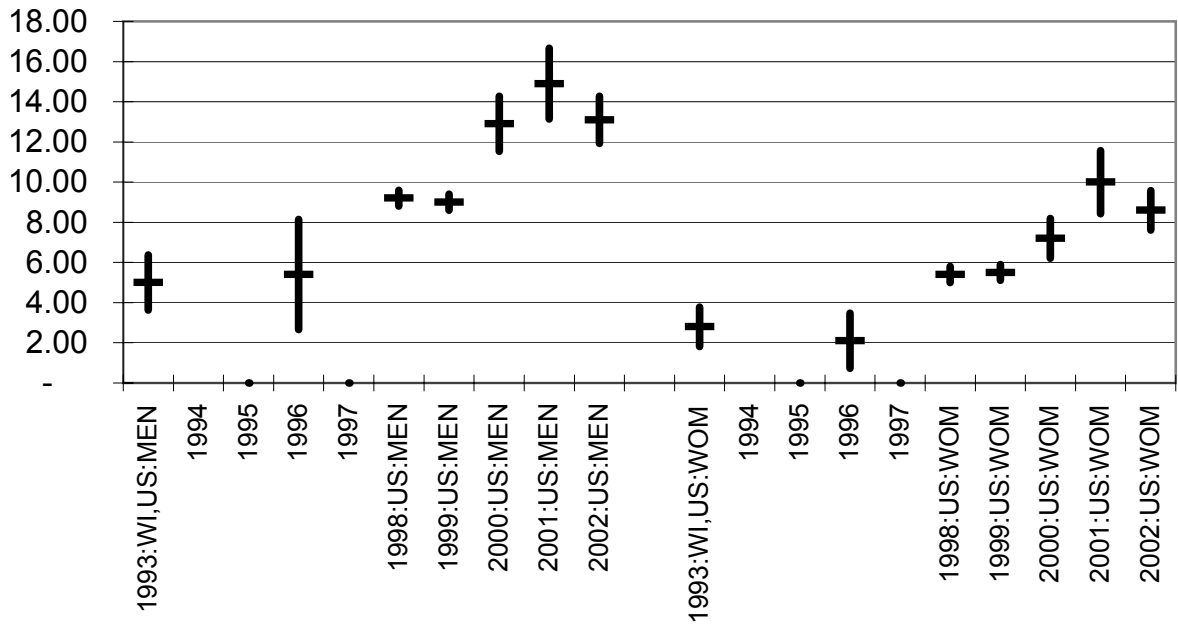


Chart 2 - Number of US Adults Responding "Yes" to Autonomous Start-Up Question

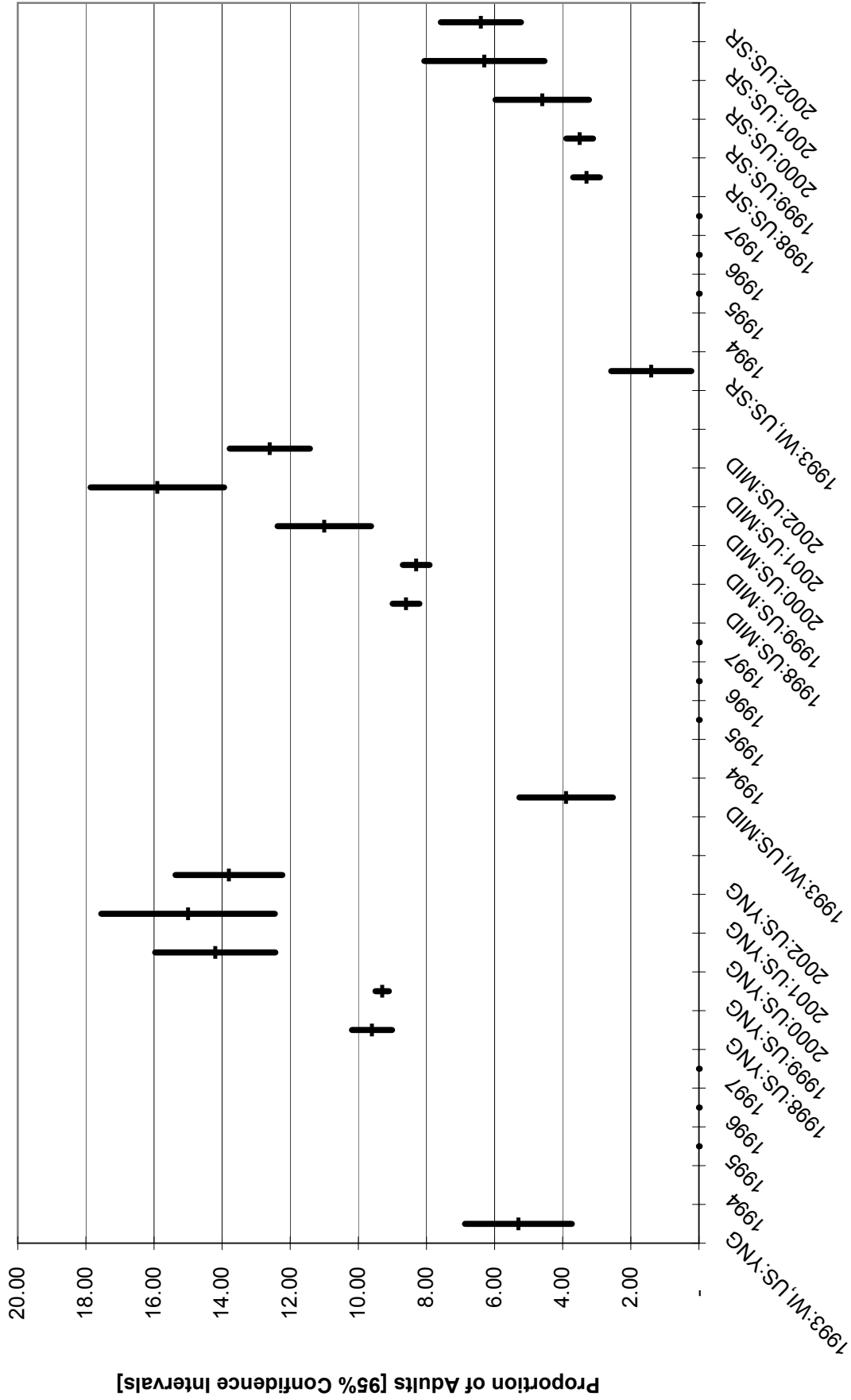


**Chart 3 - Percentage of US Adults Responding "Yes" to Autonomous Start-up: By Gender**

Percentage of Adults, 18-74 Yrs Old [95% Confidence Intervals]



**Chart 4 - Percent Autonomous Start-ups: 1993-2002 By Age [18-34 Yrs; 35-54 Yrs; 55-74 Yrs]**



**Chart 5 - Percentage of US Adults Responding "Yes" to Autonomous Start-up: 1993-2002 By Ethnic Background**

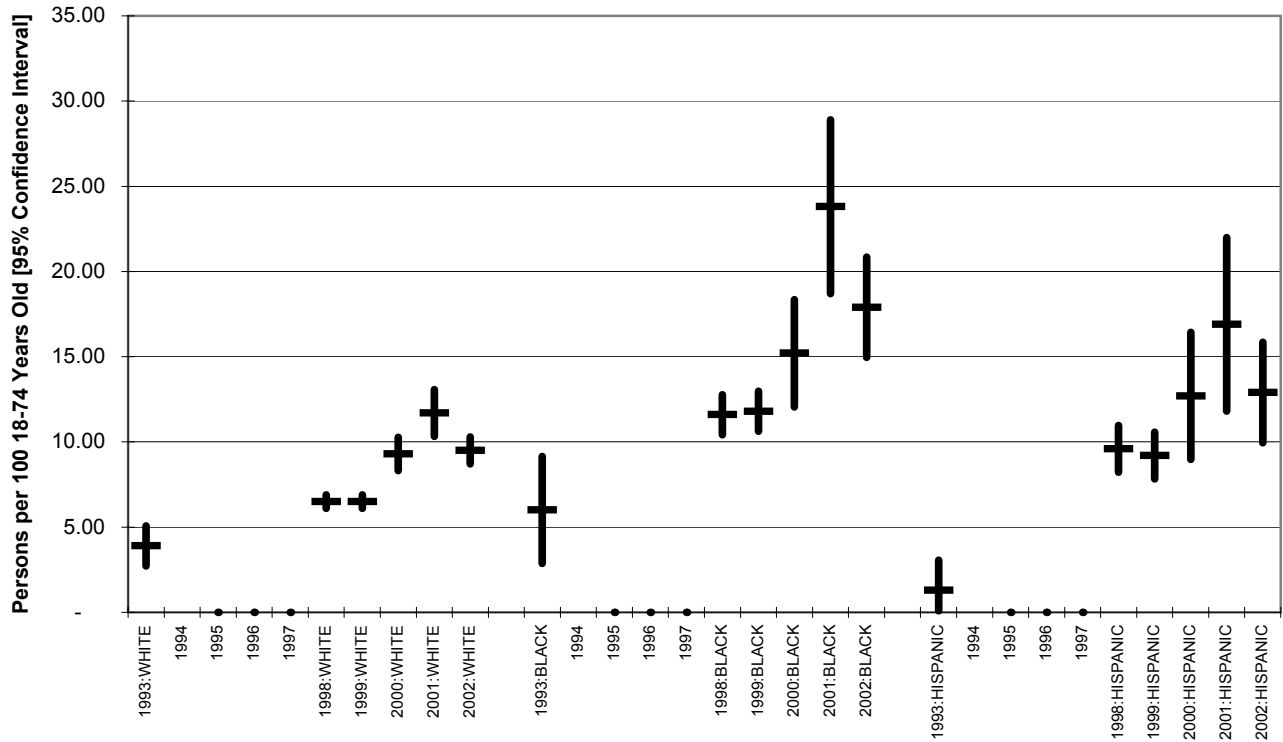


Chart 6 - Proportion of Adults with Autonomous Start-Ups [Left], Business Sponsored Start-Ups [Center], and Combined [Right]

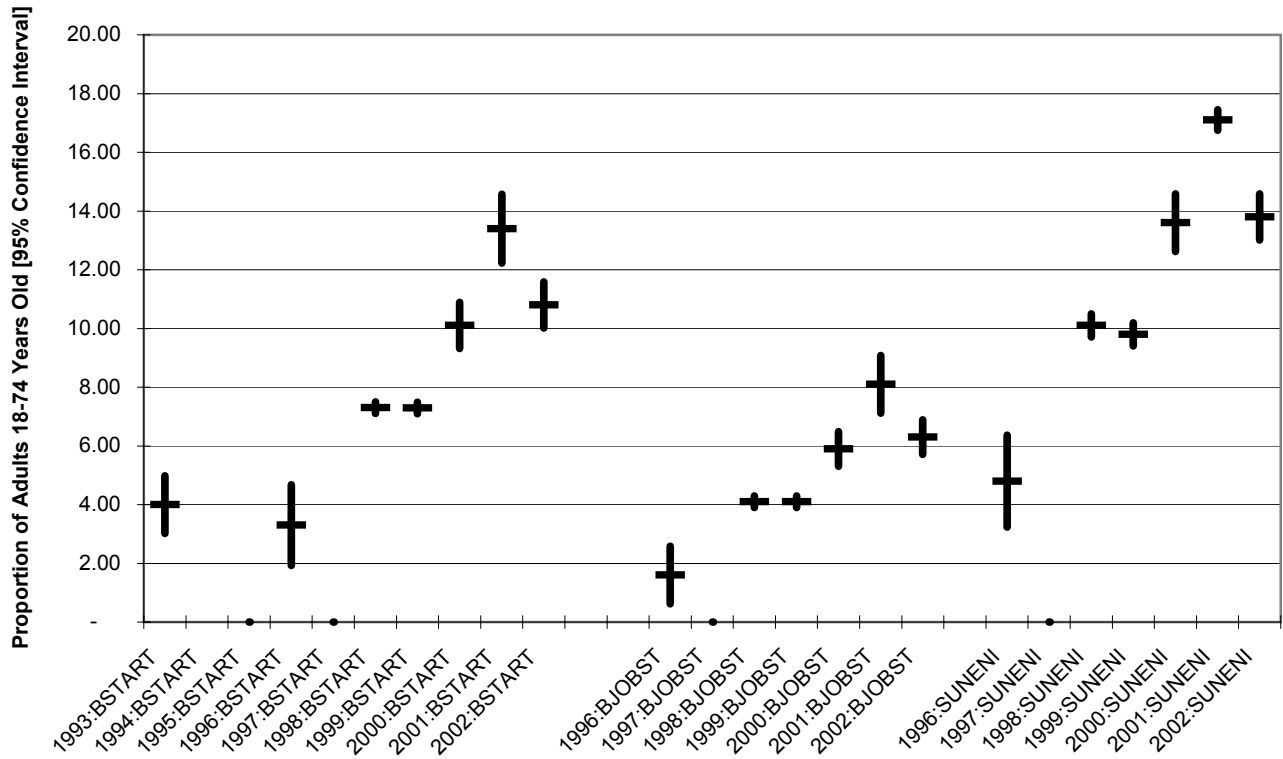




Chart 7 - Proportion of US Adults 1998-2002, Meeting Two [Left] and Three [Right] Criteria for Active Start-Up Participants

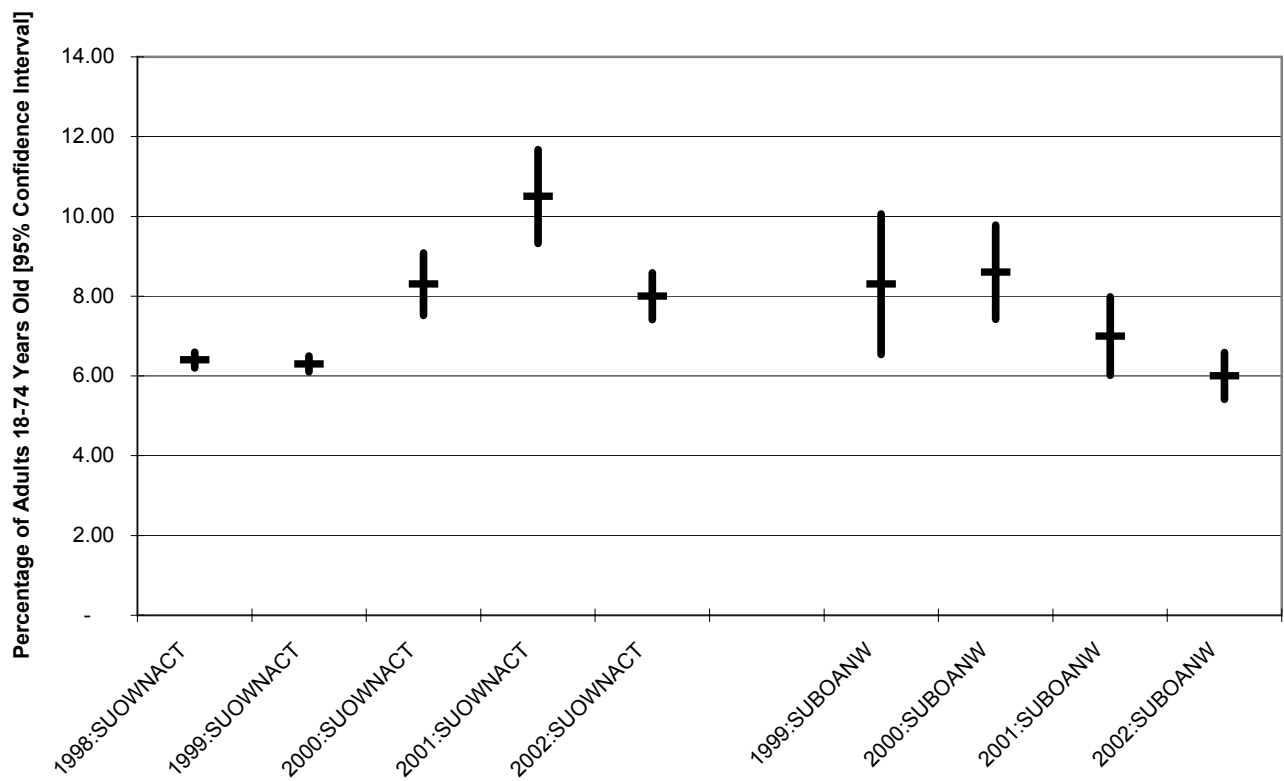


Chart 8 - Proportion of US Adults in Start-Ups, New Firms, and Combined [TEA] Index

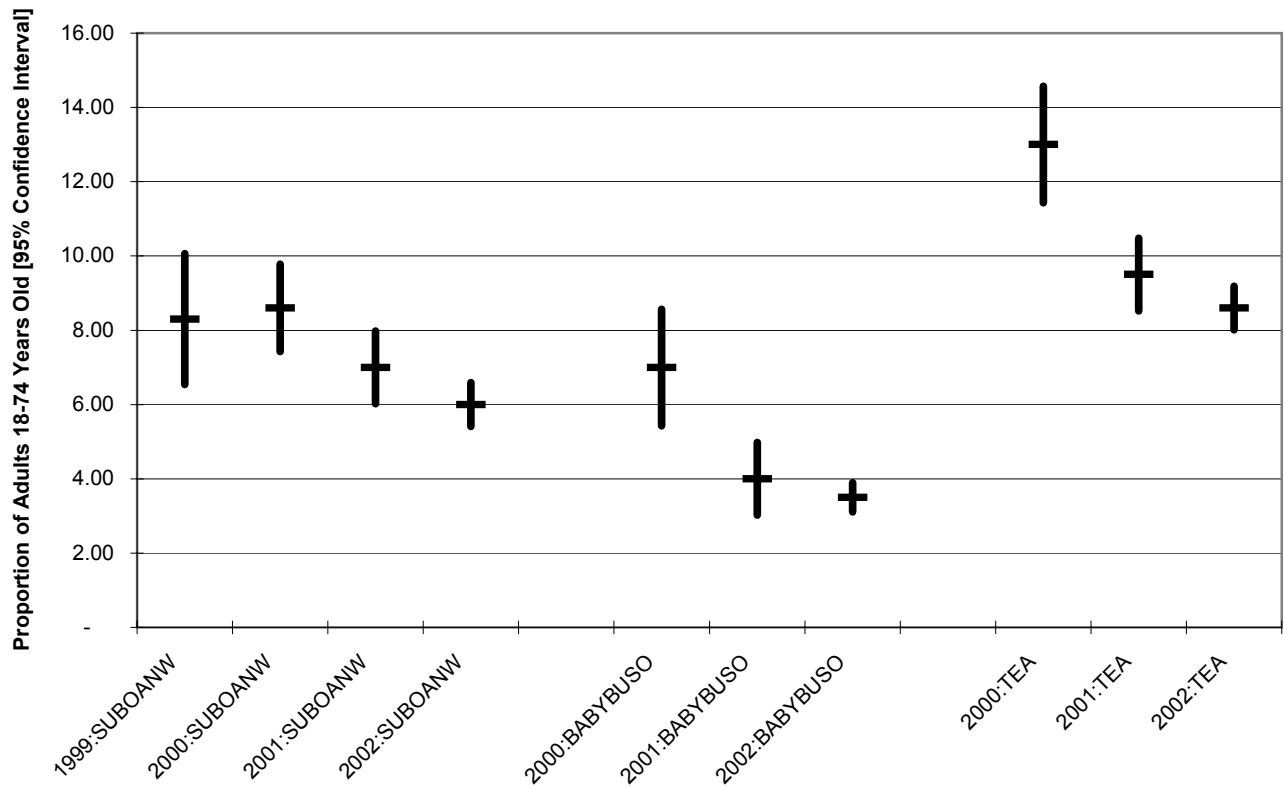


Chart 9 - Number of US Adults Involved in Start-ups, New Firms, and Combined [TEA] Index

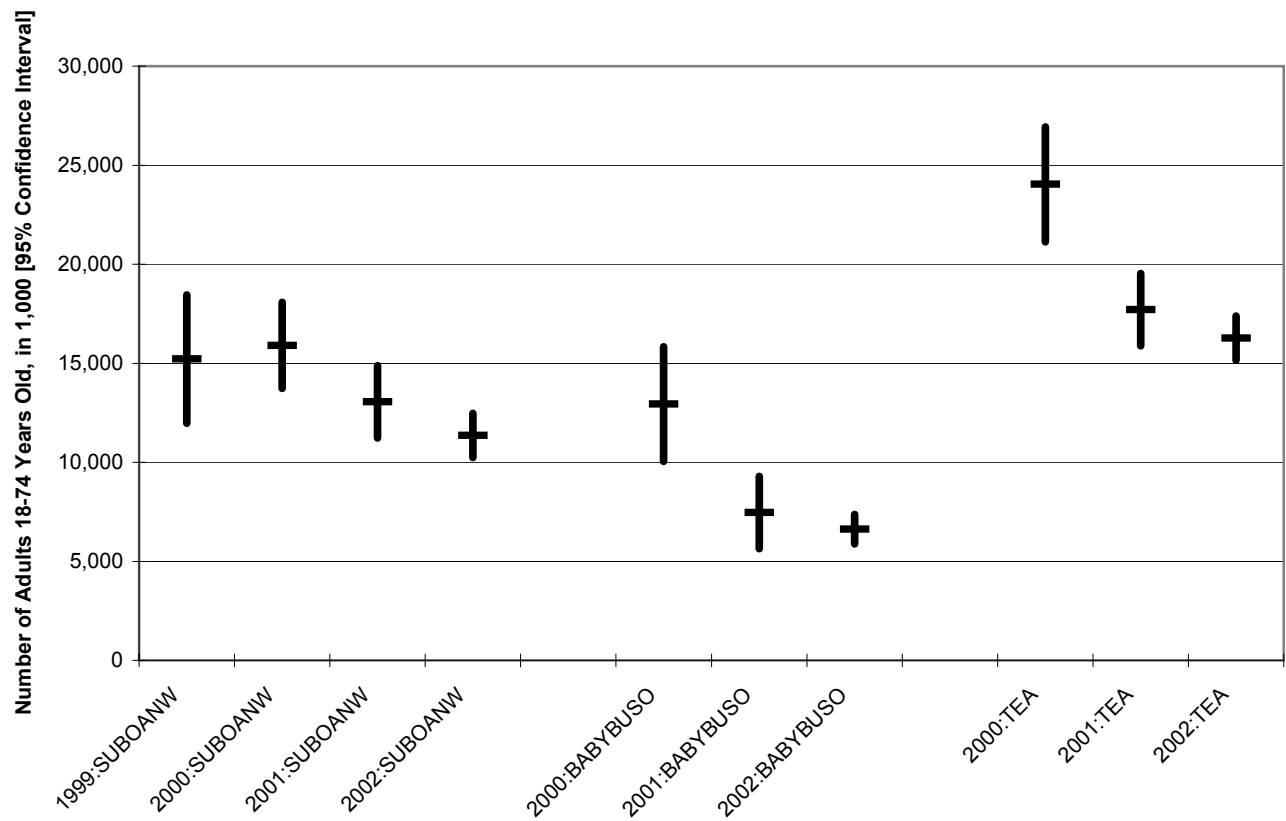


Chart 10 - Selected Measures of Business Activity: US 1993-2002

