

# The Kauffman Firm Survey

Results from the Baseline and  
First Follow-Up Surveys

March 2008



KAUFFMAN

The Foundation of Entrepreneurship

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OPEN

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[www.kauffman.org/kfs](http://www.kauffman.org/kfs)  
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# EXECUTIVE SUMMARY

**A**lthough entrepreneurial activity is an important part of a capitalist economy, only a small amount of data are available about U.S. businesses in their first years of operation. As part of an effort to gather more data on new businesses in the United States, the Ewing Marion Kauffman Foundation sponsored the Kauffman Firm Survey (KFS), a panel study of new businesses founded in 2004 and tracked over their early years of operation. The Kauffman Foundation contracted with Mathematica Policy Research, Inc., (MPR) to conduct the KFS, which collects data about the nature of new business formation activity; characteristics of the strategy, offerings, and employment patterns of new businesses; the nature of the financial and organizational arrangements of these businesses; and the characteristics of their founders.

**Results.** The data from both the Baseline and First Follow-Up Surveys provide an understanding of how businesses are organized and operate in their first two years of existence (2004 and 2005), and provide some indicators of survival and growth. Other measures describe the characteristics of the panel, such as the extent to which these businesses are involved in intellectual property innovation (patents, copyrights, or trademarks). A series of twenty-seven tables in this report gives a broad overview of the business characteristics, owner demographics, and financing patterns for the base year, as well as business dynamics over the 2004-2005 period.

The KFS dataset provides researchers a unique opportunity to study a panel of new businesses from start-up to sustainability, with longitudinal data centering on topics such as how businesses are financed; the products, services, and innovations these businesses possess and develop in their early years of existence; and the characteristics of those who own and operate them.

### Study Highlights:

The KFS' main objective is to address the informational gaps related to the study of entrepreneurship. Understanding new business development and sustainability is essential for creating policies that encourage new business development and innovation. These initial findings

provide numerous insights into the earliest years of a firm's existence. Following are some of the highlights:

- Slightly more than 2 percent of businesses reported owning patents during their first year of operation and nearly 9 percent reported having copyrights. The percent of businesses with patents and copyrights is much higher for businesses considered to be high tech, at 4 percent and 11 percent respectively. About the same percentage of businesses had trademarks (13.5 percent), regardless of their tech status.
- Nearly 60 percent of the businesses had no employees in their first year. Just under three-fourths of businesses had one employee or less, while about one-quarter of businesses had two or more employees. Very few businesses (less than 4 percent) had more than ten employees.
- Less than half of those businesses with employees offer benefits. The most common employee benefits are paid vacation, paid sick days, flex time, and health insurance.
- More than one-third of businesses (37 percent) had no revenue in their first year of operation. About 45 percent of businesses in the KFS experienced a profit during their first year, compared with about 55 percent of businesses that experienced a loss in their first year. About 17 percent of businesses had profits in excess of \$100,000.
- Nearly 44 percent of new businesses had no debt financing during their first year of operation. Many businesses were started with very little debt financing—17 percent started with \$5,000 or less; nearly 11 percent started with \$100,000 or more.
- About 80 percent of businesses had a net positive equity investment in their businesses in the first year of operation. Nearly 10 percent invested \$100,000 of equity into their businesses, while another 33 percent invested between \$10,001 and \$100,000. About one-quarter of businesses invested less than \$5,000.
- The vast majority of equity invested came from the business owners themselves. Just 10 percent of the businesses in the KFS used external equity sources in their first year of operation. Parents were the most common source of

external equity (3.4 percent), while spouses provided equity to 1.6 percent of businesses. Non-family informal investors and venture capitalists were used very infrequently (2.7 percent and 0.6 percent respectively).

- Men were the primary owners of nearly 70 percent of businesses in the KFS data, and women were the primary owners of slightly more than 30 percent. Whites were the primary owners of more than 81 percent of the businesses, while blacks were the primary owners of 9 percent, Asians were the primary owners of 4 percent, and Native Americans, Pacific Islanders, and individuals of other racial groups were the primary owners of the remaining 5 percent. Hispanics were the primary owners of about 6.6 percent of the businesses.
- Slightly fewer than 9 percent of firms closed in calendar year 2005, and the survival rates vary by owner demographics. For example, only 88 percent of businesses with blacks as the primary owners survived, compared with 92 percent of businesses with whites as the primary owners and 91 percent of businesses with Asians as the primary owners. Businesses with women as the primary owners had an 89 percent survival rate, about three percentage points lower than businesses with men as the primary owners.
- New business debt financing showed different patterns. About 28 percent of businesses took on new business debt during 2004-2005. Businesses with blacks as the primary owners had the lowest percentage at 22 percent, while businesses with whites as the primary owners had the highest percentage (29 percent). About 30 percent of businesses with men as the primary owners took on new business debt over the period, compared with less than one-quarter of businesses with women as the primary owners. Manufacturing businesses were most likely to take on new business debt over the period (36 percent), while businesses in education, health care, and social services were least likely (20 percent).
- Nearly half of businesses (48 percent) invested new internal equity during 2004-2005. However, this varies dramatically by owner race and ethnicity. Businesses with blacks as the primary owners had the highest percentage of new internal equity investments (62.6 percent), compared with just 45.5 percent of businesses with whites as the primary owners. Businesses

with Hispanics as the primary owners had a higher rate (51.4 percent) versus businesses with non-Hispanic owners (47.6 percent).

**KFS Design.** The study created the panel using a random sample from the list of new businesses started in 2004 that were included in the Dun & Bradstreet (D&B) database, which totaled roughly two hundred fifty thousand such businesses. In response to the Kauffman Foundation's interest in understanding the dynamics of high-technology businesses, the KFS oversampled businesses in industries defined as high-technology industries..

MPR conducted extensive questionnaire design activities to establish consistent definitions of what constituted a new business and the start of business operations, and to investigate the most efficient methods for collecting these data. The KFS sought to create a panel that included new businesses founded by a person or team of people, purchases of existing businesses by a new ownership team, and franchise purchases. To this end, the KFS excluded D&B records for wholly owned subsidiaries of existing businesses, businesses inherited from someone else, and not-for-profit organizations. Also, previous research on new businesses has reported variability in how business founders perceive when their businesses started operations. Therefore, MPR asked a series of questions about business activity indicators and whether these were conducted for the first time in the reference year (2004). These indicators included:

- Payment of state unemployment taxes
- Payment of Federal Insurance Contributions Act (FICA) taxes
- Presence of a legal status for the business
- Use of an Employer Identification Number (EIN)
- Use of Schedule C to report business income on a personal tax return

To be "eligible" for the KFS, at least one of these activities had to have been performed in 2004 and none performed in a prior year.

MPR developed questions on business characteristics, strategy and innovation, business structure and benefits, financing, and demographics of the principals, using a number of previous business surveys. MPR conducted a set of cognitive interviews using the questionnaire, and finalized the content after review and comments from a technical advisory group for the KFS.

**Data Collection Methodology.** A random sample of 32,469 businesses was released for data collection on the Baseline Survey, which was conducted between July 2005 and July 2006. The research team completed interviews with principals of 4,928 businesses that started operations in 2004, which translates to a 43 percent response rate when the sampling weights are applied. A self-administered Web survey and Computer-Assisted Telephone Interviewing (CATI) were used to collect data, and KFS respondents were paid \$50 to complete the interview. CATI completes accounted for 3,781 (77 percent) and Web completes accounted for 1,147 (23 percent) of the interviews. The results across sampling strata show that 2,034 interviews were completed in the two high-technology strata (see Appendix A for more information about the sampling strata), and the remaining 2,894 interviews were completed among non-high-tech businesses.

The First Follow-Up Survey sample consisted of the 4,928 businesses that completed the Baseline Survey. The First Follow-Up was conducted between June 2006 and January 2007, and 3,998 interviews were completed—an 89 percent response rate after adjusting for the sample weights. As with the Baseline Survey, respondents were paid \$50 to complete the interview, which was offered either on the Web or through CATI. During the First Follow-Up, a significantly larger percentage of interviews was completed through the Web survey (2,366 or 59 percent) than in the Baseline; CATI completes in the First Follow-Up accounted for 41 percent (1,632 interviews).

# CHAPTER 1

## INTRODUCTION

Entrepreneurship plays a dynamic role in the country's economic activity, and accurate information about new business development and sustainability is essential to establishing public and private programs that encourage new business development. However, obtaining accurate information on new firm dynamics is difficult. Surveys of new businesses tend to be hard to implement and typically have produced low response rates because of the difficulty of obtaining new business owners' cooperation. Surveys of new businesses also have faced the complexities of defining what constitutes a new business and when a new business begins operations, events that lend themselves to subjectivity if not carefully defined. Further, few previous business surveys collected information about the dynamics of business development, since longitudinal surveys of new businesses faced the issue of business attrition. Consistent with its mission to advance entrepreneurship and the study of new business creation and development, the Ewing Marion Kauffman Foundation sponsored the Kauffman Firm Survey (KFS).

### A. STUDY OBJECTIVES

The KFS' main objective is to address the informational gaps related to the study of entrepreneurship. Because of the Kauffman Foundation's commitment to providing researchers and policy decision-makers with the best possible information about new business creation and sustainability, it commissioned Mathematica Policy Research, Inc., (MPR) to design and conduct a rigorous survey to understand entrepreneurial patterns by gathering information from newly formed businesses. In particular, the goal of the KFS was to learn more about the development of high-technology and women-owned businesses, new businesses' financial experiences, and the business and owner characteristics that are associated with business success. In addition, the KFS was designed to meet the information needs of as many potential data users as possible. To begin the KFS development and design process, a core advisory

group met in May 2004 and agreed on the following concepts to frame development of the KFS: (1) the data collected would be relevant to a "pure" cohort of businesses that started in a single, targeted year, (2) the business—not any individual owner or founder—would be the focus of the information collected, (3) financial information related to business formation would be the main analytic objective, and (4) a longitudinal survey design would be needed to inform an understanding of business development dynamics and sustainability. To achieve these objectives, the research team used a deliberate and inclusive process to address the methodological challenges related to finding and identifying businesses that qualified for the survey, develop a questionnaire that accurately measured the key concepts related to business development, and achieve these businesses' survey participation.

### B. KFS DESIGN AND DEVELOPMENT

A comprehensive and collaborative process was used to design and develop the sample, questionnaire, and survey operations for the KFS.

#### 1. Literature Review and Advisory Group Consultation

Two initial actions were employed to inform the design process and test the validity of the assumptions in the proposed research: (1) a review of business and other relevant literature, and (2) consultation with an advisory group composed of probable KFS data users. The literature review included about sixty articles and related surveys that focused on business statistics and the dynamics of business formation. In particular, this review included survey instruments from the Economic Census, the Survey of Small Business Finance, and the Panel Study of Entrepreneurial Dynamics.

More than twenty technical advisors, selected because of their interest, expertise, and scholarship related to entrepreneurship, contributed to the development of the KFS. The advisory group outlined a "wish list" of information that best would meet the needs of academic researchers, members of government agencies, and public policy decision-



makers who would use the KFS data.<sup>1</sup> In addition, KFS data file core users were given an opportunity to inform the process.

Based on reviewing the literature and analyzing prior business surveys, in addition to consulting with entrepreneurship experts, multiple methodological and conceptual topics emerged that needed to be researched prior to conducting the survey. These included assumptions about the sample design, eligibility criteria for participation, incidence of eligible new businesses, and questionnaire items. A design phase included in the KFS process provided information to address these topics. For more detailed information about the KFS technical advisory group and other design activities, see the *Kauffman Firm Survey Baseline Methodology Report* available at <http://ssrn.com/abstract=1024045>.

## 2. Pilot Tests

Critical to the KFS was defining a new business as envisioned by the Kauffman Foundation and the technical advisory group, and matching this definition with the sample frame from Dun & Bradstreet (D&B). Because little was known about the incidence of the proposed eligibility criteria, two pilot tests were conducted. The August 2004 pilot test was used to identify the incidence of two criteria being considered for the definition of a new business: (1) state unemployment insurance (UI) payments and (2) Federal Insurance Contributions Act (FICA) tax payments made for the first time in the targeted year. The 20 percent incidence of businesses reporting making either UI or FICA payments for the first time during the reference year of 2003 was lower than expected. The project team also considered the potential bias related to using UI and FICA payments exclusively, since these measures are associated with having employees and would result in an under-representation of non-employer, single-owner businesses. For these reasons, the eligibility criteria were expanded during a second pilot test. This test assessed additional eligibility criteria, including (1) legal business status (sole proprietorship, general partnership, limited partnership, C-corporation, subchapter S-corporation, and limited liability company); (2) acquisition of an Employer Identification Number (EIN); and (3) use of an Internal Revenue Service

Schedule C or C-EZ as part of the owner's income tax return. These criteria yielded a 36 percent incidence. Overall, 52 percent of the owners included in the pilot tests would have met the eligibility screening on at least one of the criteria tested at that time. Based on these results, a new business eligible for the KFS targeted year was defined as any business responding positively to any one of the five tested criteria.

## 3. Questionnaire Development and Pretesting

A comprehensive and iterative process was used to develop the final questionnaire. The initial draft KFS questionnaire was crafted using the matrix of topics suggested by the advisors and relevant questionnaire items from prior studies. An explicit goal suggested by the advisors during the design process was harmonization of the KFS with other business surveys. Using the initial draft questionnaire, the research team conducted cognitive interviews with eligible new business owners to evaluate the survey instrument. Following this developmental research, a comprehensive pretest of four hundred new businesses was conducted to (1) test the questionnaire length; (2) review response distributions, missing and inappropriately skipped questions, and incomplete questionnaires; and (3) perform methodological experiments.

## C. OVERVIEW OF KFS BASELINE SURVEY METHODOLOGY

The KFS Baseline Survey was conducted from July 2005 to July 2006 using both Computer-Assisted Telephone Interviews (CATI) and self-administered Web questionnaires. Overall, 4,928 questionnaires from eligible new business owners were completed, for a response rate of 43 percent after the sampling weights were applied. Following is an overview of the survey methodology. Additional details on the data collection methodology can be found in Appendix B and also in the *Kauffman Firm Survey Baseline Methodology Report*.

### 1. Sample Design

The KFS target population was all new businesses included in the D&B database and reported by D&B as having started in 2004. The D&B database was

<sup>1</sup>During the same time period as the KFS development, to identify information needs related to business surveys and other information needed to study new business development, the Kauffman Foundation also funded a major effort by the National Academies of Science (NAS) that resulted in the publication of *Understanding Business Dynamics: An Integrated Data System for America's Future*. Several NAS participants also were KFS advisors.

partitioned into six sampling strata defined by a classification of the high-technology status of the firm and the gender of the firm's owner or CEO (based on the D&B data element). The high-technology strata were defined based on the categorization developed by Hadlock et al. (1991). Overall, 32,469 businesses were sampled to achieve 4,928 completed questionnaires. Additional details on the sample design can be found in Appendix A and also in the *Kauffman Firm Survey Baseline Methodology Report*.

### 2. Eligibility Screening and Questionnaire Content

The KFS baseline questionnaire was developed using the matrix of topics suggested by the advisors and refined during pretesting. The questionnaire has two main sections: (1) questionnaire items used to determine business eligibility and (2) modules to obtain information about the business. The modules included business characteristics, strategy and innovation, business organization and human resource benefits, business finances, and work behaviors and demographics of owner-operator(s). Because there were two modes of data collection, CATI and self-administered Web, the questionnaire was customized to maximize each mode's data collection advantages while minimizing possible mode effects.

### 3. Data Collection

Baseline survey data collection involved extensive preparation and coordination to contact the 32,469 businesses that were sampled to determine eligibility. The process began with a mailed advance letter to prospective businesses inviting them to participate using the KFS self-administered Web questionnaire and informing them that eligible businesses would receive \$50 when the questionnaire was completed. Following the invitation, business owners who did not complete the questionnaire on the Web received telephone calls from trained interviewers to determine their eligibility and to complete an interview with those that were eligible. Overall, 77 percent of the Baseline Survey questionnaires were completed using CATI, and 23 percent were completed using the self-administered Web questionnaire.

The First Follow-Up Survey was conducted among the 4,928 businesses completing the Baseline Survey. Respondents were contacted initially by e-mail and invited to complete the KFS Web survey.

Businesses without e-mail addresses or those not completing the Web survey were contacted by mail, similarly to those in the Baseline Survey. Respondents were again paid \$50 after completing the survey. The Baseline Survey had established eligibility for all businesses in the panel; therefore, the only eligibility criterion for the First Follow-Up was whether the business was still in operation. Of the 4,928 completes at baseline, 3,998 follow-up interviews were completed, a response rate of 89 percent after sampling weights were applied. Three hundred sixty-eight businesses were identified as out of business during the First Follow-Up. More detailed information about the data collection efforts is available in Appendix B. Information on the First Follow-Up Surveys can be found in *First-Follow-Up Methodology Report* (forthcoming).

### 4. Doing Research Using the Kauffman Firm Survey

The Kauffman Firm Survey collects data on a panel study of 4,928 businesses founded in 2004. This data set is available for scholars to test entrepreneurship theories and to help illuminate previously unknown aspects of entrepreneurial development. Scholars wishing to access the KFS public-use data file can do so at [www.kauffman.org/kfs](http://www.kauffman.org/kfs). Three documents, in particular, are likely to be of help in beginning data analysis:

- Robb, Alicia, David DesRoches, Timothy M. Mulcahy, and Scott A. Shane. "Kauffman Firm Survey (KFS) 2005/2006 – Baseline/First Follow-Up: Study Metadata Documentation" (January 22, 2008). Available at <http://ssrn.com/abstract=1024312>.
- Ballou, Janice, and David DesRoches. "Kauffman Firm Survey (KFS): Baseline Annotated Questionnaire." (January 22, 2008). Available at <http://ssrn.com/abstract=1024298>.
- Barton, Tom, and David DesRoches. "Kauffman Firm Survey (KFS): First Follow-Up Annotated Questionnaire." (January 22, 2008). Available at <http://ssrn.com/abstract=1024304>.

Collection of the KFS second follow-up data has been completed and will be released in late spring 2008.

## CHAPTER II

# RESULTS

The KFS collected data about the selected businesses' operations during their first two years of existence (calendar years 2004 and 2005). This chapter presents tables that help describe the KFS population, including legal status, location, hiring, employee benefits, and the presence of intellectual property. The tables in this chapter are broken into the following groups:

- A) Business Characteristics
- B) Financing Patterns
- C) Owner Demographics
- D) Business Dynamics

These tables provide a broad overview of the KFS. Further analysis will be available in a series of papers that will be posted to the KFS section of the Kauffman Foundation Web site (<http://www.kauffman.org/kfs/>) as they are completed.

### A. BUSINESS CHARACTERISTICS

The first set of tables provides information about business characteristics during the businesses' first year of existence, or calendar year 2004.

#### 1. Legal Form of Organization

More than one-third of businesses were organized as sole proprietorships during their first year of operations; slightly more than 30 percent were organized as limited liability companies, and slightly more than 20 percent as S-corporations. A limited number of businesses were organized as C-corporations (7.9 percent) and general/limited partnerships (5.7 percent).

Table 1  
Business Legal Status

|  | Sample Count | Weighted Percentage |
|--|--------------|---------------------|
| Sole Proprietorship                    | 1,635        | 35.8                |
| Limited Liability Company              | 1,557        | 30.5                |
| S-corporation                          | 1,040        | 20.1                |
| C-corporation                          | 441          | 7.9                 |
| General/Limited Partnership and Others | 255          | 5.7                 |

Source: Kauffman Firm Survey, Baseline Data; Tabulations by Mathematica Policy Research, Inc.

#### 2. Physical Location

Nearly half of businesses started in the business owner's home or garage. Slightly more than 40 percent operated in rented or leased space, while the remainder operated at the site of a current client, or in a building or location bought by the business.

Table 2  
Business Location

|                       | Sample Count | Weighted Percentage |
|-----------------------|--------------|---------------------|
| Residence-Home/Garage | 2,483        | 49.2                |
| Rented/Leased Space   | 1,933        | 40.5                |
| Other                 | 506          | 10.3                |

Source: Kauffman Firm Survey, Baseline Data; Tabulations by Mathematica Policy Research, Inc.

### 3. Products and Services Offered by the Business

The vast majority of businesses offered a service or multiple services, while slightly more than half (51.4 percent) offered a product, and nearly 38 percent of businesses offered both products and services.

**Table 3**  
Business Product/Service Offerings

|  | Sample Count | Weighted Percentage |
|--|--------------|---------------------|
| Business Offers a Service(s)               | 4,194        | 86.1                |
| Business Offers Product(s)                 | 2,539        | 51.4                |
| Business Offers Both Service(s)/Product(s) | 1,826        | 37.7                |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

### 4. Industry

The KFS provides industry information by two-digit North American Industry Classification System (NAICS) level. As illustrated in Table 4, the most common industry sectors are professional, management, and educational services; retail trade; administrative, support, waste management, and remediation services; and construction.

**Table 4**  
Business Distribution by NAICS Sector

|   | Sample Count | Weighted Percentage |
|---|--------------|---------------------|
| Professional, Management, and Educational Services                        | 1,229        | 17.0                |
| Retail Trade  | 484          | 14.2                |
| Administrative and Support, and Waste Management and Remediation Services | 396          | 11.1                |
| Construction  | 353          | 11.0                |
| Other Services (except Public Administration)                             | 434          | 9.2                 |
| Manufacturing   | 881          | 6.4                 |
| Wholesale Trade   | 198          | 5.9                 |
| Real Estate, and Rental and Leasing                                       | 176          | 5.2                 |
| Finance and Insurance   | 152          | 4.5                 |
| Health Care and Social Assistance   | 114          | 3.5                 |
| Information   | 163          | 3.1                 |
| Transportation and Warehousing  | 97           | 2.7                 |
| Arts, Entertainment, Recreation   | 110          | 2.6                 |
| Accommodation and Food Services   | 88           | 2.5                 |
| Agriculture, Forestry, Fishing, and Hunting                               | 45           | 1.2                 |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

**5. Patents, Copyrights, and Trademarks**

Slightly more than 2 percent of businesses received patents during their first year of operation, while nearly 9 percent received copyrights. The percent of businesses with patents and copyrights is much higher for businesses considered to be high tech, at 4 percent and 11 percent respectively.<sup>2</sup> About the same percentage of businesses had trademarks (13.5 percent), regardless of their tech status.

**Table 5**  
**Business Patents, Copyrights, and Trademarks**

|                         | Sample Count | Weighted Percentage |
|-------------------------|--------------|---------------------|
| Percent with patents    |              |                     |
| All                     | 187          | 2.2                 |
| High-Tech               | 137          | 4.1                 |
| Low-Tech                | 50           | 1.8                 |
| Percent with copyrights |              |                     |
| All                     | 485          | 8.7                 |
| High-Tech               | 242          | 11.4                |
| Low-Tech                | 243          | 8.1                 |
| Percent with trademarks |              |                     |
| All                     | 721          | 13.5                |
| High-Tech               | 327          | 13.0                |
| Low-Tech                | 394          | 13.6                |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

**6. Employment**

Almost 60 percent of the businesses had no employees. Slightly fewer than 75 percent had one employee or less, while about 25 percent of businesses had two or more employees. Very few businesses (less than 4 percent) had more than ten employees. (Employees are defined in this table as non-owner employees.)

**Table 6**  
**Percentage of Business by Employment Size**

|      | Sample Count | Weighted Percentage |
|------|--------------|---------------------|
| Zero | 2,838        | 59.2                |
| 1    | 690          | 14.0                |
| 2    | 417          | 9.1                 |
| 3    | 225          | 4.6                 |
| 4-5  | 271          | 5.8                 |
| 6-10 | 208          | 3.9                 |
| 11+  | 174          | 3.6                 |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

<sup>2</sup>The technology status was based on BLS definitions (Hadlock, Hecker and Gannon [1991]).

### 7. Employee Functions

For businesses with employees (referred to as employer businesses), the KFS asked whether or not one or more employees worked in various functional areas. Table 7 shows the percentage of businesses that had at least one employee working in each of the functional areas. Slightly more than half of employer businesses had employees working in executive, financial, or general administration. Slightly less than half of employer businesses had employees working in sales or marketing and about 40 percent had employees working in human resources, or research and development. Less than one-third of employer businesses had employees working in production and manufacturing.

**Table 7**  
Percentage of Businesses with One or More  
Individuals Responsible for Different Functional Areas

|                          | Sample<br>Count | Weighted<br>Percentage |
|--------------------------|-----------------|------------------------|
| General Administration   | 2,527           | 51.6                   |
| Financial Administration | 2,487           | 50.9                   |
| Executive Administration | 2,509           | 50.4                   |
| Sales or Marketing       | 2,386           | 48.1                   |
| Research and Development | 2,078           | 40.6                   |
| Human Resources          | 1,881           | 38.1                   |
| Production/Manufacturing | 1,624           | 31.8                   |
| Others                   | 193             | 4.1                    |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

### 8. Employee Benefits

For those businesses with employees, the KFS details the employee benefits the businesses offer. In the KFS, businesses with employees account for 41 percent of the full population. The most common employee benefits offered by businesses with employees are paid vacation, paid sick days, flex time, and health insurance, though, in all cases, less than half of employer businesses offered these benefits. This table presents benefits for either full-time or part-time employees for those businesses with employees. It is possible to break out the benefits offered to each group separately.

**Table 8**  
Percentage of Employer Businesses  
Offering Employee Benefits

|                       | Sample<br>Count | Weighted<br>Percentage |
|-----------------------|-----------------|------------------------|
| Flex Time             | 788             | 37.2                   |
| Paid Vacation         | 767             | 36.2                   |
| Paid Sick Days        | 655             | 31.0                   |
| Health Insurance      | 618             | 29.5                   |
| Bonus Plan            | 481             | 24.9                   |
| Retirement Plan       | 213             | 9.6                    |
| Tuition Reimbursement | 162             | 8.2                    |
| Other Benefits        | 155             | 8.0                    |
| Stock Options         | 144             | 6.1                    |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.  
Note: This table contains only those businesses with employees, which is about 41 percent of the total population.

### 9. Revenue, Profits, and Expenses

More than one-third of businesses (37 percent) had no revenue in their first year of operation. About 45 percent of businesses in the KFS population experienced a profit during their first year of operation, compared with about 55 percent of businesses that experienced a loss in their first year. About 17 percent of businesses had profits in excess of \$100,000, while slightly more (17.9 percent) had profits that fell between \$25,000 and \$100,000. Among those experiencing a profit, about 25 percent earned a profit of \$25,000 or more, while about 45 percent earned profits between \$1,001 and \$25,000. For businesses experiencing a loss, about 22 percent experienced a loss of \$25,001 or more, while about 62 percent had a loss between \$1,001 and \$25,000.

The vast majority of businesses (93 percent) had expenses during their first year of operation. Slightly fewer than 17 percent had expenses of more than \$100,000, while about 25 percent had expenses between \$25,000 and \$100,000, and nearly 16 percent had expenses between \$10,000 and \$25,000.

**Table 9A**  
Percentage of Businesses by Revenues and Expenses

|                    | Sample Count | Weighted Percentage |
|--------------------|--------------|---------------------|
| <b>Revenues</b>    |              |                     |
| Zero               | 1,704        | 36.7                |
| \$1,000 or less    | 220          | 4.8                 |
| \$1,001-\$5,000    | 367          | 7.7                 |
| \$5,001-\$10,000   | 291          | 5.9                 |
| \$10,001-\$25,000  | 443          | 10.0                |
| \$25,001-\$100,000 | 868          | 17.9                |
| \$100,001 or more  | 848          | 17.1                |
| <b>Expenses</b>    |              |                     |
| Zero               | 344          | 7.1                 |
| \$1,000 or less    | 403          | 8.2                 |
| \$1,001-\$3,000    | 415          | 8.8                 |
| \$3,001-\$5,000    | 356          | 7.4                 |
| \$5,001-\$10,000   | 513          | 11.0                |
| \$10,001-\$25,000  | 727          | 16.0                |
| \$25,001-\$100,000 | 1,157        | 25.1                |
| \$100,001 or more  | 811          | 16.5                |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

**Table 9B**  
Percentage of Businesses by Amount of Profits or Losses

|                    | Sample Count | Weighted Percentage |
|--------------------|--------------|---------------------|
| <b>Profit</b>      |              |                     |
| Zero               | 418          | 20.4                |
| \$500 or less      | 111          | 5.4                 |
| \$501-\$1,000      | 90           | 4.3                 |
| \$1,001-\$3,000    | 181          | 8.7                 |
| \$3,001-\$5,000    | 155          | 7.5                 |
| \$5,001-\$10,000   | 245          | 12.2                |
| \$10,001-\$25,000  | 350          | 17.2                |
| \$25,001-\$100,000 | 430          | 19.8                |
| \$100,001 or more  | 101          | 4.7                 |
| <b>Loss</b>        |              |                     |
| Zero               | 94           | 3.3                 |
| \$500 or less      | 190          | 7.4                 |
| \$501-\$1,000      | 142          | 5.7                 |
| \$1,001-\$3,000    | 368          | 14.8                |
| \$3,001-\$5,000    | 284          | 12.0                |
| \$5,001-\$10,000   | 423          | 17.3                |
| \$10,001-\$25,000  | 431          | 17.8                |
| \$25,001-\$100,000 | 426          | 17.7                |
| \$100,001 or more  | 147          | 4.0                 |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

### 10. Number of Owners

The KFS collected data on up to ten owners for each business. While most businesses (65 percent) had just one owner, slightly more than 25 percent had two owners, and 9.1 percent of businesses had three or more owners.

**Table 10**  
Percentage of Businesses by Number of Owners

|    | Sample Count | Weighted Percentage |
|----|--------------|---------------------|
| 1  | 3,163        | 65.2                |
| 2  | 1,256        | 25.8                |
| 3  | 311          | 5.7                 |
| 4+ | 198          | 3.4                 |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

## B. FINANCING PATTERNS

The KFS contains information on both debt and equity financing, including the amounts and sources of each. The following tables summarize the financing patterns of new businesses in their first year of operation.

### 1. Debt Financing

Nearly 44 percent of new businesses had no debt financing during their first year of operation. Many businesses started with very little debt financing—17 percent of businesses started with \$5,000 or less, while 16 percent of businesses started with between \$5,001 and \$25,000. Finally, 12.5 percent of businesses started with at least \$25,001 but less than \$100,000, and 10.7 percent started with \$100,000 or more. This debt financing included both personal and business debt used in the business.

**Table 11**  
Percentage of Businesses by Debt Financing Amount  
(Personal and Business)

|                    | Sample Count | Weighted Percentage |
|--------------------|--------------|---------------------|
| Zero               | 2,231        | 43.8                |
| \$1,000 or less    | 279          | 5.4                 |
| \$1,001-\$3,000    | 321          | 6.5                 |
| \$3,001-\$5,000    | 241          | 5.3                 |
| \$5,001-\$10,000   | 342          | 7.2                 |
| \$10,001-\$25,000  | 422          | 8.6                 |
| \$25,001-\$100,000 | 582          | 12.5                |
| \$100,001 or more  | 501          | 10.7                |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.

### 2. Personal Debt Sources

About 48 percent of businesses used some source of personal debt financing during their initial year of operations. As shown in Table 12, the sources most frequently used were carrying credit card balances on a personal credit card (30.2 percent), carrying credit card balances on a business credit card (18 percent), and having a personal bank loan by the owner(s) (14.6 percent). More than 10 percent of businesses had a family loan taken out by an owner.

**Table 12**  
Percentage of Businesses with Personal Debt  
by Financing Source

|   | Sample Count | Weighted Percentage |
|---|--------------|---------------------|
| <b>Personal Debt of Any Kind</b>          | <b>2,275</b> | <b>48.1</b>         |
| Personal Credit Card Balances by Owner(s) | 1,445        | 30.2                |
| Personal Bank Loan by Owner(s)            | 840          | 18.0                |
| Business Credit Card Balances by Owner(s) | 683          | 14.6                |
| Family Loan by Owner(s)                   | 433          | 10.1                |
| Other Personal Loan by Owner(s)           | 92           | 2.0                 |
| Other Personal Debt by Owner(s)           | 62           | 1.3                 |

Source: Kauffman Firm Survey, Baseline Data;  
Tabulations by Mathematica Policy Research, Inc.



**Table 13**  
**Percentage of Businesses with Business Debt**  
**by Financing Source**

|                                  | Sample<br>Count | Weighted<br>Percentage |
|----------------------------------|-----------------|------------------------|
| <b>Business Debt of Any Kind</b> | <b>1,194</b>    | <b>24.4</b>            |
| Business Credit Card Balance     | 558             | 11.6                   |
| Bank Business Loan               | 314             | 6.6                    |
| Business Credit Line Balance     | 275             | 5.5                    |
| Family Business Loan             | 136             | 2.9                    |
| Non-Bank Business Loan           | 92              | 1.7                    |
| Owner Business Loan              | 78              | 1.5                    |
| Government Business Loan         | 44              | 0.9                    |
| Other Industry Business Loan     | 27              | 0.5                    |
| Other Business Debt              | 24              | 0.5                    |
| Other Business Loan              | 24              | 0.3                    |

Source: Kauffman Firm Survey, Baseline Data;  
 Tabulations by Mathematica Policy Research, Inc.

### 3. Business Debt

About one-quarter of businesses used some source(s) of business debt financing during the first year of operation. The most frequently used sources were business credit card balances (11.6 percent), a business bank loan (6.6 percent), and business credit line balances (5.5 percent). The remaining sources, including government and family business loans, were used infrequently.

**Table 14**  
**Percentage of Businesses with Equity Financing**  
**by Amount (Internal and External)**

|                    | Sample<br>Count | Weighted<br>Percentage |
|--------------------|-----------------|------------------------|
| Zero               | 991             | 20.0                   |
| \$1,000 or less    | 410             | 7.8                    |
| \$1,001-\$3,000    | 422             | 8.6                    |
| \$3,001-\$5,000    | 419             | 8.6                    |
| \$5,001-\$10,000   | 599             | 12.4                   |
| \$10,001-\$25,000  | 701             | 15.2                   |
| \$25,001-\$100,000 | 890             | 18.2                   |
| \$100,001 or more  | 476             | 9.1                    |

Source: Kauffman Firm Survey, Baseline Data;  
 Tabulations by Mathematica Policy Research, Inc.

### 4. Equity Financing

Eighty percent of businesses had some net positive equity investment in their businesses in the first year of operation. The remaining 20 percent had zero net equity investments the first year. Nearly 10 percent invested \$100,000 of equity into their businesses, while another 33 percent invested between \$10,001 and \$100,000. About one-quarter of businesses invested some amount less than \$5,000. Both internal and external equity are included in Table 14.

**5. External Equity Sources**

The vast majority of equity invested was from the business owners themselves. Just 10 percent of the businesses in the KFS population used external equity sources in their first year of operation. Of those who did, parents were the most common source of external equity (3.4 percent), while spouses provided equity to 1.6 percent of businesses. Non-family informal investors, venture capitalists, and government agencies were used very infrequently (2.7 percent, 0.6 percent, and 0.5 percent respectively).

**Table 15**  
**Percentage of Businesses Using External Equity Sources**

|                                    | Sample Count | Weighted Percentage |
|------------------------------------|--------------|---------------------|
| <b>External Equity of Any Kind</b> | <b>488</b>   | <b>9.6</b>          |
| Parents                            | 152          | 3.4                 |
| Non-Family Informal Investors      | 147          | 2.7                 |
| Spouses                            | 78           | 1.6                 |
| Other Companies                    | 70           | 1.1                 |
| Venture Capitalists                | 36           | 0.6                 |
| Government                         | 31           | 0.5                 |

Source: Kauffman Firm Survey, Baseline Data; Tabulations by Mathematica Policy Research, Inc.

### C. OWNER DEMOGRAPHICS

For the following tables with owner demographics, each business has been assigned a primary owner. This is self-explanatory for single-owner businesses. For business with more than one owner, a primary owner is assigned under a set of rules based on equity share and, in the case of equal ownership, based on hours worked and other owner characteristics.

#### 1. Gender, Race, Ethnicity, Age, and Education

Men were the primary owners of nearly 70 percent of businesses in the KFS population. Whites were the primary owners of more than 81 percent of the businesses, blacks were the primary owners of 9 percent, Asians were the primary owners of 4 percent, and the remaining 5 percent were primarily owned by Native Americans, Pacific Islanders, and individuals of other racial groups. Hispanics were primary owners of 6.6 percent of the businesses. About 63 percent of the primary business owners were between thirty-five and fifty-four years old. A smaller share was younger than thirty-five years old (19 percent), while the oldest category (age fifty-five and older) made up about 18 percent of businesses. Nearly a quarter of the primary business owners had some level of post-college education. About 24 percent were college graduates and about 30 percent had some college or an associate’s degree. About 15 percent had a high school education or less, and the remaining 6.7 percent had some type of technical, trade, or vocational degree.

Table 16  
Primary Owner Demographics

|                                   | Sample Count | Weighted Percentage |
|-----------------------------------|--------------|---------------------|
| <b>Gender</b>                     |              |                     |
| Male                              | 3,649        | 69.2                |
| Female                            | 1,267        | 30.8                |
| <b>Race</b>                       |              |                     |
| White                             | 4,068        | 81.2                |
| Black                             | 413          | 9.2                 |
| Asian                             | 201          | 4.2                 |
| Others                            | 246          | 5.5                 |
| <b>Ethnicity</b>                  |              |                     |
| Non-Hispanic                      | 4,599        | 93.4                |
| Hispanic                          | 284          | 6.6                 |
| <b>Age</b>                        |              |                     |
| 24 or younger                     | 69           | 1.5                 |
| 25-34                             | 799          | 17.5                |
| 35-44                             | 1,629        | 33.8                |
| 45-54                             | 1,453        | 28.9                |
| 55 or older                       | 953          | 18.3                |
| <b>Education</b>                  |              |                     |
| High School Graduate and Less     | 641          | 15.3                |
| Technical/Trade/Vocational Degree | 312          | 6.7                 |
| Some College, No Degree           | 1,039        | 22.5                |
| Associate’s Degree                | 400          | 8.4                 |
| Bachelor’s Degree                 | 1,215        | 24.2                |
| Some Graduate School, No Degree   | 293          | 5.5                 |
| Master’s Degree                   | 711          | 12.4                |
| Professional School/Doctorate     | 286          | 5.0                 |

Source: Kauffman Firm Survey, Baseline Data; Tabulations by Mathematica Policy Research, Inc.

**2. Experience and Hours Worked**

Experience varied greatly among primary owners in the KFS population. About a quarter of primary owners had twenty or more years of previous industry experience before starting their businesses. Slightly fewer than 40 percent of the primary owners had five years or less of previous industry experience. About 35 percent had between ten and twenty-four years of previous industry experience. For many of these business owners, entrepreneurship was not new—more than 40 percent had experience starting at least one business. More than 10 percent had started three or more businesses prior to the KFS business start-up. For the majority of these owners, this business venture was a full-time activity. About 64 percent of primary owners worked thirty-six or more hours, while just 36 percent worked thirty-five hours or less.

**Table 17**  
**Primary Owner Experience and Hours Worked**

|                                     | Sample Count | Weighted Percentage |
|-------------------------------------|--------------|---------------------|
| <b>Years of Industry Experience</b> |              |                     |
| Zero                                | 398          | 9.6                 |
| 1-2                                 | 603          | 13.4                |
| 3-5                                 | 676          | 15.5                |
| 6-9                                 | 502          | 10.3                |
| 10-14                               | 716          | 14.0                |
| 15-19                               | 601          | 11.6                |
| 20-24                               | 518          | 9.4                 |
| 25-29                               | 400          | 7.5                 |
| 30+                                 | 496          | 8.6                 |
| <b>Previous Business Start-ups</b>  |              |                     |
| 0                                   | 2,820        | 58.5                |
| 1                                   | 1,046        | 21.3                |
| 2                                   | 490          | 9.7                 |
| 3                                   | 249          | 4.8                 |
| 4+                                  | 291          | 5.8                 |
| <b>Hours Worked per Week</b>        |              |                     |
| Less than 20                        | 848          | 16.8                |
| 20-35                               | 934          | 19.2                |
| 36-45                               | 717          | 15.0                |
| 46-55                               | 741          | 15.2                |
| 56+                                 | 1,593        | 33.8                |

Source: Kauffman Firm Survey, Baseline Data; Tabulations by Mathematica Policy Research, Inc.

**3. Employment by Primary Owner Demographics**

The data can be examined by various primary owner demographics or business characteristics. For example, about 40 percent of businesses have employees overall, but more than 48 percent of businesses with Asians as primary owners were employer firms. Men were much more likely than women to own businesses that had employees (43 percent versus 35 percent respectively). Hispanics had a slightly higher rate of employer businesses (42 percent) than non-Hispanics (40 percent).

**Table 18**  
**Percentage of Businesses with Employees**  
**(by Race, Gender, and Ethnicity of Primary Owner)**

|              | Sample Count | Weighted Percentage |
|--------------|--------------|---------------------|
| <b>All</b>   | <b>1,985</b> | <b>40.0</b>         |
| White        | 1,638        | 40.0                |
| Black        | 162          | 39.1                |
| Asian        | 98           | 48.1                |
| Others       | 87           | 34.2                |
| Male         | 1,536        | 42.3                |
| Female       | 445          | 34.7                |
| Non-Hispanic | 1,847        | 39.8                |
| Hispanic     | 121          | 42.3                |

Source: Kauffman Firm Survey, Baseline Data; Tabulations by Mathematica Policy Research, Inc.

#### 4. Debt Financing by Owner Demographics

Differences emerge when looking at debt financing by different demographics, as well. About 57 percent of white primary owner businesses had debt financing, compared with about 48 percent of black primary owner businesses. Businesses with male and female primary owners had very similar debt financing rates; Hispanics had a slightly higher rate of debt financing (61 percent) than did non-Hispanics (56 percent).

**Table 19**  
**Percentage of Businesses with Debt Financing**  
**(Personal and Business, by Primary Owner**  
**Demographics)**

|                       | Sample Count | Weighted Percentage |
|-----------------------|--------------|---------------------|
| <b>All Businesses</b> | <b>2,688</b> | <b>56.1</b>         |
| White                 | 2,243        | 57.0                |
| Black                 | 207          | 47.9                |
| Asian                 | 103          | 52.6                |
| Others                | 135          | 58.8                |
| Male                  | 2,003        | 56.4                |
| Female                | 683          | 55.6                |
| Non-Hispanic          | 2,508        | 56.0                |
| Hispanic              | 165          | 60.9                |

Source: Kauffman Firm Survey, Baseline Data;  
 Tabulations by Mathematica Policy Research, Inc.

#### 5. Equity Financing by Owner Demographics

Differences in equity financing, at least in the use of equity in the first year, were smaller. Equity use was quite similar between businesses primarily owned by men and women, and between businesses primarily owned by Hispanics and non-Hispanics. Slight differences appeared across the racial groups, with black primary owner businesses having the highest rate of equity financing (82.5 percent), followed by Asian primary owner businesses (81.1 percent), and then white primary owner businesses (79.6). However, when one breaks out equity into internal and external, larger differences emerge, especially between black and white primary owner businesses. As shown in Table 20B, black primary owner businesses had the highest percentage with internal equity (83 percent), compared with 79 percent for white primary owner businesses. Black primary owners had the lowest rate of businesses with external equity financing (7 percent), compared with 10 percent for white primary owners.

**Table 20A**  
**Percentage of Businesses with Equity Financing**  
**(Internal and External, by Primary Owner**  
**Demographics)**

|                       | Sample Count | Weighted Percentage |
|-----------------------|--------------|---------------------|
| <b>All Businesses</b> | <b>3,917</b> | <b>79.6</b>         |
| White                 | 3,233        | 79.6                |
| Black                 | 341          | 82.5                |
| Asian                 | 162          | 81.1                |
| Others                | 181          | 73.7                |
| Male                  | 2,899        | 79.5                |
| Female                | 1,011        | 79.9                |
| Non-Hispanic          | 3,665        | 79.8                |
| Hispanic              | 222          | 78.4                |

Source: Kauffman Firm Survey, Baseline Data;  
 Tabulations by Mathematica Policy Research, Inc.

**Table 20B**  
**Percentage of Businesses with Internal and External Equity Financing (Internal and External, by Primary Owner Demographics)**

|                        | Sample Count | Weighted Percentage |
|------------------------|--------------|---------------------|
| <b>Internal Equity</b> |              |                     |
| <b>All Businesses</b>  | <b>3,866</b> | <b>78.7</b>         |
| White                  | 3,195        | 78.7                |
| Black                  | 339          | 83.1                |
| Asian                  | 158          | 78.3                |
| Others                 | 174          | 71.9                |
| Male                   | 2,859        | 78.5                |
| Female                 | 1,001        | 79.3                |
| Non-Hispanic           | 3,623        | 79.0                |
| Hispanic               | 216          | 76.6                |
| <b>External Equity</b> |              |                     |
| <b>All Businesses</b>  | <b>488</b>   | <b>9.6</b>          |
| White                  | 407          | 9.9                 |
| Black                  | 31           | 6.9                 |
| Asian                  | 28           | 11.2                |
| Others                 | 22           | 9.6                 |
| Male                   | 383          | 10.0                |
| Female                 | 102          | 8.6                 |
| Non-Hispanic           | 459          | 9.7                 |
| Hispanic               | 24           | 8.1                 |

Source: Kauffman Firm Survey, Baseline Data;  
 Tabulations by Mathematica Policy Research, Inc.  
 Note: Some businesses had both internal and external equity.

## D. BUSINESS DYNAMICS

The KFS offers information on the baseline year of operation (2004) when the firm was started, as well as the second year of operation (2005), allowing researchers to study the dynamics of these businesses over time. The last set of tables gives an overview of survival, employment changes, revenue changes, and profit changes over this period.

### 1. Survival

Slightly less than 9 percent of firms closed in calendar year 2005. However, differences exist by owner demographics and industry. For example, only 88 percent of black primary owner businesses survived, compared with 92 percent of white primary owner businesses and 91 percent of Asian primary owner businesses. Women primary owner businesses had a survival rate of 89 percent, about 3 percentage points lower than businesses with male primary owners. Businesses in wholesale, retail, transportation, education, health care, social services, arts, entertainment, and recreation had average survival rates of less than 90 percent, while businesses in mining, utilities, construction, information, finance, insurance, real estate, and professional services had survival rates around 93 percent.

**Table 21**  
One-Year Survival Rates by Business and Primary Owner Characteristics (2004-2005)

|  | Sample Count | Weighted Percentage |
|--|--------------|---------------------|
| <b>All</b>   | <b>3,998</b> | <b>91.4</b>         |
| White  | 3,364        | 91.7                |
| Black  | 303          | 88.2                |
| Asian  | 150          | 90.9                |
| Others   | 181          | 92.7                |
| Male   | 2,967        | 92.4                |
| Female   | 1,022        | 89.2                |
| Non-Hispanic   | 3,755        | 91.5                |
| Hispanic   | 211          | 89.7                |
| <b>Survival Rates by 1-Digit NAICS Code</b>  |              |                     |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 1,742        | 92.6                |
| Manufacturing  | 712          | 94.4                |
| Wholesale, Retail, Transportation, Postal Service, Couriers, and Storage                             | 602          | 88.9                |
| Other Services (Except Public Administration)  | 354          | 92.3                |
| Mining, Utilities, and Construction  | 289          | 93.1                |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 152          | 86.5                |
| Education, Health Care, and Social Services  | 110          | 88.1                |
| Agriculture, Forestry, Fishing, and Hunting  | 37           | 90.5                |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate

Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;  
Tabulations by Mathematica Policy Research, Inc.

## 2. Change in Employment

Slightly fewer than 40 percent of businesses added employees over the 2004-2005 period, 40 percent had no employment change over the period, and 20 percent saw employment fall. Businesses that had employment increases exhibit several differences across owner demographics and business industry. Nearly 47 percent of Asian primary owner businesses added employment, compared with 38 percent of white primary owner businesses and 37 percent of black primary owner businesses. Just 33 percent of women primary owner businesses added employees, compared with more than 41 percent of businesses with male primary owners. Finally, about 42 percent of Hispanic primary owner businesses added employees, compared with 38 percent of non-Hispanic primary owner businesses. There were some differences by industry, as well. Businesses in mining, utilities, construction, and manufacturing had the largest percentages of businesses adding employees, at 45 percent to 46 percent. Just 30 percent of businesses in other services and 32 percent of businesses in agriculture, forestry, fishing, and hunting added jobs over the period.

**Table 22**  
**Employment Changes by Business and Primary Owner Characteristics**

|  | Sample Count | Weighted Percentage |
|--|--------------|---------------------|
| Employment: Increase   | 1,707        | 38.7                |
| Employment: No Change  | 1,725        | 40.0                |
| Employment: Decrease   | 889          | 20.2                |
| <b>Employment Increase by Race</b>   |              |                     |
| White  | 1,409        | 37.9                |
| Black  | 128          | 36.6                |
| Asian  | 83           | 46.9                |
| Others   | 87           | 48.2                |
| <b>Employment Increase by Gender</b>   |              |                     |
| Male   | 1,332        | 41.3                |
| Female   | 369          | 32.7                |
| <b>Employment Increase by Ethnicity</b>  |              |                     |
| Non-Hispanic   | 1,593        | 38.4                |
| Hispanic   | 99           | 41.9                |
| <b>Employment Increase by 1-Digit NAICS Code</b>   |              |                     |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 708          | 37.9                |
| Manufacturing  | 362          | 45.2                |
| Wholesale, Retail, Transportation, Postal Service, Couriers, and Storage                             | 265          | 38.5                |
| Mining, Utilities, and Construction  | 138          | 45.9                |
| Other Services (Except Public Administration)  | 111          | 30.3                |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 58           | 35.8                |
| Education, Health Care, and Social Services  | 52           | 42.2                |
| Agriculture, Forestry, Fishing, and Hunting  | 13           | 31.8                |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate  
Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;  
Tabulations by Mathematica Policy Research, Inc.



### 3. Change in Revenues

Another growth measure is sales or revenues. Table 23 shows revenue changes over the 2004-2005 period, and then breaks out businesses with revenue growth by owner demographics and business industry. About 43 percent of businesses increased revenues over the period, compared with one-third that experienced no change and 23 percent that saw their revenues decrease. Looking at businesses with revenue growth, we again see differences emerging after just one year. At 47 percent, Asian primary owner businesses had the highest share of revenue growth. Black and other primary owners had the lowest rates, at 40 percent and 36 percent respectively. White primary owner businesses registered in the middle with 40 percent of businesses achieving revenue growth. Non-Hispanic primary owners had a much higher percentage of businesses with revenue growth (43 percent) compared with Hispanic primary owners (36 percent). A great deal of industry variation occurred as well, with agriculture, forestry, fishing, and hunting coming in at the top with 58 percent of businesses experiencing revenue growth, while other services came in at the bottom, with just 38 percent of businesses having positive revenue growth.

**Table 23**  
Revenue Changes by Business and Primary Owner Characteristics

|  | Sample<br>Count | Weighted<br>Percentage |
|--|-----------------|------------------------|
| Revenue: Increase  | 1,874           | 42.7                   |
| Revenue: No Change   | 1,448           | 33.1                   |
| Revenue: Decrease  | 965             | 22.5                   |
| <b>Revenue Increase by Race</b>  |                 |                        |
| White  | 1,589           | 43.2                   |
| Black  | 142             | 39.8                   |
| Asian  | 70              | 46.8                   |
| Others   | 73              | 36.2                   |
| <b>Revenue Increase by Gender</b>  |                 |                        |
| Male   | 1,386           | 42.9                   |
| Female   | 481             | 41.9                   |
| <b>Revenue Increase by Ethnicity</b>   |                 |                        |
| Non-Hispanic   | 1,774           | 43.3                   |
| Hispanic   | 86              | 36.3                   |
| <b>Revenue Increase by 1-Digit NAICS Code</b>  |                 |                        |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 819             | 43.4                   |
| Manufacturing  | 345             | 46.9                   |
| Wholesale, Retail, Transportation, Postal Service, Couriers ,and Storage                             | 283             | 41.4                   |
| Other Services (Except Public Administration)  | 145             | 37.8                   |
| Mining, Utilities, and Construction  | 133             | 44.0                   |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 76              | 42.5                   |
| Education, Health Care, and Social Services  | 50              | 39.6                   |
| Agriculture, Forestry, Fishing, and Hunting  | 23              | 58.3                   |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate  
Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;  
Tabulations by Mathematica Policy Research, Inc.

#### 4. Change in Profits

Table 24 shows the change in profits over the 2004-2005 period using two methods. The first method, shown in the left-hand columns, uses the owner's survey response to a specific profits question. The second method, shown in the right-hand columns, calculates the change using the owner's survey responses to the revenue and expense questions. As seen below, method one indicates that 45 percent of businesses experienced an increase in profits over the period, compared with 37 percent of businesses using the second method. Interestingly, the resulting percentages were nearly identical for black primary owner businesses, but extremely different for all other racial groups. Black primary owners had the lowest percentage using the first method, but the highest percentage using the second method. Women primary owners had a higher share of businesses reporting profit increases as compared with male-owned businesses for both methods. Results for Hispanic primary owners were mixed, depending on the method used. Industries differ by method as well; however, businesses in information, finance, insurance, real estate, professional services, education, health care, social services, and other services all had relatively high percentages of business reporting profit increases over the period.

**Table 24**  
**Profit Changes by Business and Primary Owner Characteristics**

|  | Method 1     |                     | Method 2     |                     |
|--|--------------|---------------------|--------------|---------------------|
|  | Sample Count | Weighted Percentage | Sample Count | Weighted Percentage |
| Profits: Increase  | 1,973        | 44.9                | 1,583        | 36.8                |
| Profits: No change   | 791          | 18.0                | 1,117        | 24.9                |
| Profits: Decrease  | 1,438        | 32.9                | 1,508        | 34.6                |
| <b>Profits Increase by Race</b>  |              |                     |              |                     |
| White  | 1,663        | 45.4                | 1,324        | 36.6                |
| Black  | 147          | 40.3                | 140          | 40.5                |
| Asian  | 76           | 45.3                | 57           | 37.7                |
| Others   | 87           | 44.8                | 62           | 31.7                |
| <b>Profits Increase by Gender</b>  |              |                     |              |                     |
| Male   | 1,441        | 44.3                | 1,126        | 35.6                |
| Female   | 528          | 46.4                | 455          | 39.5                |
| <b>Profits Increase by Ethnicity</b>   |              |                     |              |                     |
| Non-Hispanic   | 1,855        | 45.0                | 1,501        | 37.3                |
| Hispanic   | 109          | 46.4                | 75           | 30.4                |
| <b>Profits Increase by 1-Digit NAICS Code</b>  |              |                     |              |                     |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 870          | 46.5                | 709          | 38.6                |
| Manufacturing  | 340          | 45.9                | 265          | 35.9                |
| Wholesale, Retail, Transportation, Postal Service, Couriers, and Storage                             | 278          | 40.8                | 234          | 34.8                |
| Other Services (Except Public Administration)  | 203          | 52.6                | 147          | 38.8                |
| Mining, Utilities, and Construction  | 122          | 39.5                | 100          | 31.9                |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 77           | 41.5                | 57           | 32.4                |
| Education, Health Care, and Social Services  | 64           | 51.9                | 49           | 39.4                |
| Agriculture, Forestry, Fishing, and Hunting  | 19           | 47.2                | 22           | 57.1                |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate  
Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;  
Tabulations by Mathematica Policy Research, Inc.

## 5. New Debt Infusions

The KFS not only tracks business performance over time, but also new financial infusions, both debt and equity. Table 25A details new personal debt financing over the 2004-2005 period. Nearly half of businesses took on personal debt financing over this period. Asian primary owner businesses had the greatest share (54 percent), while white primary owner businesses had the lowest share (47 percent). Businesses with male primary owners had about the same percentage of personal financing as did businesses with female primary owners. Hispanic primary owner businesses had the highest percentage, at 56 percent, compared with 47 percent of non-Hispanic primary owner businesses. The arts, entertainment, recreation, accommodation, and food services industries had the highest percentage of businesses with new personal debt financing (55 percent), while information, finance, insurance, real estate, and professional services had the lowest percentage (42.5 percent).

**Table 25A**  
New Personal Debt by Business and Primary Owner Characteristics

|  | Sample Count | Weighted Percentage |
|--|--------------|---------------------|
| New Debt   | 1,803        | 47.5                |
| No New Debt  | 2,192        | 52.5                |
| <b>New Debt by Race</b>  |              |                     |
| White  | 1,492        | 46.8                |
| Black  | 151          | 49.0                |
| Asian  | 77           | 54.4                |
| Others   | 83           | 50.8                |
| <b>New Debt by Gender</b>  |              |                     |
| Male   | 1,338        | 47.4                |
| Female   | 463          | 47.9                |
| <b>New Debt by Ethnicity</b>   |              |                     |
| Non-Hispanic   | 1,686        | 47.2                |
| Hispanic   | 112          | 55.9                |
| <b>New Debt by 1-Digit NAICS Code</b>  |              |                     |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 691          | 42.5                |
| Manufacturing  | 344          | 54.1                |
| Wholesale, Retail, Transportation, Postal Service, Couriers, and Storage                             | 325          | 53.9                |
| Other Services (Except Public Administration)  | 153          | 44.6                |
| Mining, Utilities, and Construction  | 138          | 48.1                |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 82           | 55.0                |
| Education, Health Care, and Social Services  | 54           | 50.5                |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate

Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;  
Tabulations by Mathematica Policy Research, Inc.

**New Debt Infusions (continued)**

New business debt financing showed different patterns. About 28 percent of businesses took on new business debt over 2004-2005. Black primary owner businesses had the lowest percentage at 22 percent, while white primary owner businesses had the highest percentage (29 percent). About 30 percent of businesses owned by male primary owners took on new business debt over the period, compared with less than one-quarter of businesses with female primary owners. Manufacturing businesses were most likely to take on new business debt over the period (36 percent), while businesses in education, health care, and social services were least likely (20 percent).

**Table 25B**  
**New Business Debt by Business and Primary Owner Characteristics**

|  | Sample<br>Count | Weighted<br>Percentage |
|--|-----------------|------------------------|
| New Debt   | 1,115           | 28.3                   |
| No New Debt  | 2,880           | 71.7                   |
| <b>New Debt by Race</b>  |                 |                        |
| White  | 959             | 29.2                   |
| Black  | 66              | 21.8                   |
| Asian  | 46              | 29.1                   |
| Others   | 44              | 23.4                   |
| <b>New Debt by Gender</b>  |                 |                        |
| Male   | 874             | 29.9                   |
| Female   | 239             | 24.6                   |
| <b>New Debt by Ethnicity</b>   |                 |                        |
| Non-Hispanic   | 1,047           | 28.3                   |
| Hispanic   | 60              | 29.1                   |
| <b>New Debt by 1-Digit NAICS Code</b>  |                 |                        |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 400             | 23.9                   |
| Manufacturing  | 262             | 36.1                   |
| Wholesale, Retail, Transportation, Postal Service, Couriers, and Storage                             | 206             | 34.1                   |
| Mining, Utilities, and Construction  | 93              | 33.0                   |
| Other Services (Except Public Administration)  | 79              | 25.0                   |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 38              | 25.8                   |
| Education, Health Care, and Social Services  | 22              | 19.9                   |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate  
 Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;  
 Tabulations by Mathematica Policy Research, Inc.

## 6. New Equity Investment

The last two tables illustrate new equity investments over the 2004-2005 period. Table 26A displays internal equity (equity investment by owners); external equity (equity investment by non-owners, such as parent or spouse, venture capitalists, and angel investors) is shown in Table 26B. Nearly half of businesses (48 percent) invested new internal equity over the period 2004-2005. However, this varies dramatically by owner and business characteristics. Black primary owner businesses had the highest percentage of new internal equity investments (62.6 percent), compared with just 45.5 percent of white primary owner businesses. Hispanic primary owner businesses had a higher rate (51.4 percent) versus non-Hispanic primary owner businesses (47.6 percent). Differences emerged by industry as well, with agriculture, forestry, fishing, and hunting having the highest share (61 percent) and other services having the lowest share (44 percent).

**Table 26A**  
New Internal Equity by Business and Primary Owner Characteristics

|  | Sample<br>Count | Weighted<br>Percentage |
|--|-----------------|------------------------|
| New Internal Equity  | 1,897           | 47.7                   |
| No New Internal Equity   | 2,092           | 52.3                   |
| <b>New Equity by Race</b>  |                 |                        |
| White  | 1,523           | 45.5                   |
| Black  | 200             | 62.6                   |
| Asian  | 75              | 50.6                   |
| Others   | 99              | 54.8                   |
| <b>New Equity by Gender</b>  |                 |                        |
| Male   | 1,414           | 48.2                   |
| Female   | 480             | 46.8                   |
| <b>New Equity by Ethnicity</b>   |                 |                        |
| Non-Hispanic   | 1,776           | 47.6                   |
| Hispanic   | 107             | 51.4                   |
| <b>New Equity by 1-Digit NAICS Code</b>  |                 |                        |
| Information, FIRE <sup>1</sup> , Rental and Leasing, Professional, Scientific and Tech, and Services | 777             | 45.3                   |
| Manufacturing  | 360             | 49.7                   |
| Wholesale, Retail, Transportation, Postal Service, Couriers, and Storage                             | 314             | 52.2                   |
| Other Services (Except Public Administration)  | 154             | 44.1                   |
| Mining, Utilities, and Construction  | 132             | 46.1                   |
| Arts, Entertainment, Recreation, Accommodation, and Food Services                                    | 82              | 51.0                   |
| Education, Health Care, and Social Services  | 56              | 50.1                   |
| Agriculture, Forestry, Fishing, and Hunting  | 22              | 61.0                   |

<sup>1</sup> FIRE is Finance, Insurance, and Real Estate

Source: Kauffman Firm Survey, Baseline and First Follow-Up Data;

Tabulations by Mathematica Policy Research, Inc.

**New Equity Investment (continued)**

Just 6.1 percent of businesses received new external equity over 2004-2005. Due to the small sample sizes, industry breakouts are not presented, and one should be careful with the race, gender, and ethnicity comparisons. The largest difference was by gender, with 6.9 percent of businesses with male primary owners receiving new external equity financing, compared with just 4.3 percent of businesses with female primary owners.

**Table 26B**  
**New External Equity by Primary Owner**  
**Characteristics**

|                                | Sample Count | Weighted Percentage |
|--------------------------------|--------------|---------------------|
| New External Equity            | 276          | 6.1                 |
| No New External Equity         | 3,713        | 93.9                |
| <b>New Equity by Race</b>      |              |                     |
| White                          | 225          | 6.1                 |
| Black                          | 22           | 5.3                 |
| Asian                          | 13           | 6.1                 |
| Others                         | 16           | 7.8                 |
| <b>New Equity by Gender</b>    |              |                     |
| Male                           | 226          | 6.9                 |
| Female                         | 49           | 4.3                 |
| <b>New Equity by Ethnicity</b> |              |                     |
| Non-Hispanic                   | 253          | 6.0                 |
| Hispanic                       | 19           | 7.8                 |

Source: Kauffman Firm Survey, Baseline and First Follow-Up Data; Tabulations by Mathematica Policy Research, Inc.

## CONCLUSIONS

Data from the Baseline and First Follow-Up Surveys provide an understanding of how businesses are organized and operate in their first two years of existence. The series of tables provided describe the panel characteristics and give a broad overview of the business characteristics, owner demographics, and financing patterns for the base year, as well as business dynamics over the 2004-2005 period. These data provide researchers the opportunity to study a panel of new businesses from the start-up stage and beyond. As additional years are added, the longitudinal data will allow researchers to investigate ongoing financial infusions, changes in strategy and innovation, and survival and growth. Many important topics can be investigated, including the determinants of business survival and the roles played by financial and human capital.

# REFERENCES

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## APPENDIX A

# SAMPLING METHODS

The target population is the population on which conclusions are drawn. For the Kauffman Firm Survey (KFS), the target population was all new businesses started in the 2004 calendar year in the United States (the 50 states plus the District of Columbia). This population excludes any branch or subsidiary owned by an existing business or a business inherited from someone else. The issue that arose immediately with this target definition is the meaning of *started*. Working with the Ewing Marion Kauffman Foundation and the technical advisory group, Mathematica Policy Research, Inc., (MPR) used pilot studies to evaluate alternative definitions of *started* based on indicators of business operations, such as having an Employer Identification Number (EIN), Schedule C income, a legal form, or payment of state unemployment insurance or federal Social Security taxes. For the study population, a business started in 2004 was defined as a new, independent business created by a single person or a team of people, the purchase of an existing business, or the purchase of a franchise. Businesses were excluded if they had an EIN, Schedule C income, or a legal form, or had paid state unemployment insurance or federal Social Security taxes prior to 2004.

The KFS sampling frame is based on the Dun & Bradstreet (D&B) database and restricted to businesses (or enterprises) that D&B reported as started in 2004. The D&B database was partitioned into six sampling strata defined by industrial technology categories (based on industry designation) and gender of the business owner or CEO (based on the D&B data element and supplemented by including businesses whose owners had a feminine first name). The high-technology strata were defined based on a categorization developed by Hadlock et al. (1991). The definition took into account the industry's percentage of employment in R&D and classified the businesses into technology groups based on their Standard Industrialization Classification (SIC) codes. Industries in the technology strata are shown in Table A.1.

**Table A.1**  
**Technology Strata Definitions**

| Technology Stratum | SIC Code | Industry  |
|--------------------|----------|---|
| High-Tech          | 28       | Chemicals and allied products                       |
|                    | 35       | Industrial machinery and equipment                  |
|                    | 36       | Electrical and electronic equipment                 |
|                    | 38       | Instruments and related products                    |
| Medium-Tech        | 131      | Crude petroleum and natural gas operations          |
|                    | 211      | Cigarettes  |
|                    | 291      | Petroleum refining                                  |
|                    | 299      | Miscellaneous petroleum and coal products           |
|                    | 335      | Non-ferrous rolling and drawing                     |
|                    | 371      | Motor vehicles and equipment                        |
|                    | 372      | Aircraft and parts                                  |
|                    | 376      | Guided missiles, space vehicles, parts              |
|                    | 737      | Computer and data processing services               |
|                    | 871      | Engineering and architectural services              |
|                    | 873      | Research and testing services                       |
|                    | 874      | Management and public relations                     |
|                    | 899      | Services, not elsewhere classified                  |
| Non-Tech           | 229      | Miscellaneous textile goods                         |
|                    | 261      | Pulp mills  |
|                    | 267      | Miscellaneous converted paper products              |
|                    | 348      | Ordinance and accessories, not elsewhere classified |
|                    | 379      | Miscellaneous transportation equipment              |
| Non-Tech           |          | All other industries                                |



Because of the analytic interest of the high-technology businesses, we oversampled these businesses. Specifically, the original sampling design called for 2,000 interviews to be completed in two categories of high-technology businesses and 3,000 interviews to be completed among businesses in all other industrial classifications. Subsequently, we took all high-tech businesses into the sample. The women-owned indicator served as an explicit stratum, so that the proportion of women-owned businesses in the sample was the same as the proportion of women-owned businesses in the frame.

### A. SAMPLING FRAME

The D&B compiles data from various sources, including credit bureaus, state offices that register some new businesses, and companies (e.g., credit card and shipping companies) that are likely to be used by all businesses. However, compiling information on newly formed businesses is particularly difficult because there is no single registry of new businesses, and the time between establishing the business and the business showing

up in one of D&B's sources may be six or more months. To capture as complete a picture as possible of businesses starting in 2004, we arranged with D&B to provide multiple files at different points during 2005. We obtained a file in June 2005 and then a new file in November 2005. As shown in Table A.2, in June 2005, D&B provided MPR with a file of 188,000 businesses with a reported starting year of 2004. This number was approximately 30 percent lower than a similar file received in June 2004 of businesses starting in 2003. We investigated the lower number and found no clear changes in D&B operations and no evidence available from federal sources to verify or disprove this count.

The November D&B file included roughly 63,000 businesses with reported starting dates in 2004, resulting in a total pool of roughly 251,000 businesses from the combined June and November files (Table A.2). However, 13,000 businesses from the June file (7 percent) were not in the November file (Table A.3); the new total pool was 238,000 businesses. We presumed the 13,000 businesses were no longer in operation. Such businesses were referred to as "deceased."

Table A.2  
Sampling Frame of Businesses in D&B Database: Businesses with 2004 Start Date

| Technology Stratum | Women-Owned | June File      | Deceased in November <sup>1</sup> | New in November | Total All (June and November) | Operating Total |
|--------------------|-------------|----------------|-----------------------------------|-----------------|-------------------------------|-----------------|
| <b>Total</b>       |             | <b>188,292</b> | <b>13,439</b>                     | <b>62,990</b>   | <b>251,282</b>                | <b>237,843</b>  |
| High-Tech          |             | 2,593          | 144                               | 1,276           | 3,869                         | 3,725           |
|                    | Yes         | 361            | 21                                | 166             | 527                           | 506             |
|                    | No          | 2,232          | 123                               | 1,110           | 3,342                         | 3,219           |
|                    |             | 22,544         | 926                               | 7,117           | 29,661                        | 28,735          |
| Medium-Tech        | Yes         | 4,332          | 153                               | 1,215           | 5,547                         | 5,394           |
|                    | No          | 18,212         | 773                               | 5,902           | 24,114                        | 23,341          |
|                    |             | 163,155        | 12,369                            | 54,597          | 217,752                       | 205,383         |
| Non-Tech           | Yes         | 32,016         | 2,177                             | 9,951           | 41,967                        | 39,790          |
|                    | No          | 131,139        | 10,192                            | 44,646          | 175,785                       | 165,593         |

<sup>1</sup>"Deceased in November" is the count of businesses in the D&B database in June 2005 that were not in the database in November 2005.

Table A.3  
Losses of Businesses in D&B Database: June 2005 to November 2005,  
with 2004 Start Date

| Technology Stratum | Women-Owned | June File      | Deceased      | Percentage Deceased |
|--------------------|-------------|----------------|---------------|---------------------|
| <b>Total</b>       |             | <b>188,292</b> | <b>13,439</b> | <b>7.1</b>          |
| High-Tech          | Total       | 2,593          | 144           | 5.6                 |
|                    | Yes         | 361            | 21            | 5.8                 |
|                    | No          | 2,232          | 123           | 5.5                 |
| Medium-Tech        | Total       | 22,544         | 926           | 4.1                 |
|                    | Yes         | 4,332          | 153           | 3.5                 |
|                    | No          | 18,212         | 773           | 4.2                 |
| Non-Tech           | Total       | 163,155        | 12,369        | 7.6                 |
|                    | Yes         | 32,016         | 2,177         | 6.8                 |
|                    | No          | 131,139        | 10,192        | 7.8                 |

## B. SAMPLE ALLOCATION

Because we planned to obtain a second D&B file in November 2005, we needed to release a sufficiently large sample in June 2005 to accommodate the expected response and eligibility rates, but we also wanted to balance the sample size between the two files to reduce unequal sampling weights. As mentioned earlier, because the high-technology businesses numbered only twenty-five hundred (again, fewer than expected) and because we wanted a large pool of these businesses for the longitudinal panel, we decided to include all

of these businesses in the sample to obtain an adequate count of high-technology businesses. For the other strata, we were somewhat conservative but still released relatively large samples.

When the November sample was released, we again decided to include all of the high-technology businesses in the sample to obtain an adequate count of these businesses for the longitudinal panel. For the other strata, we attempted to balance the final sample across the two files and the sampling strata. The final sample size and sampling rates are shown in Table A.4.

Table A.4  
Samples from D&B Database: Businesses with 2004 Start Date

| Technology Stratum  | Women-Owned | June Sample   | June Frame Percentage | November Sample | November Frame Percentage | Total Sample  |
|---------------------|-------------|---------------|-----------------------|-----------------|---------------------------|---------------|
| <b>Total Sample</b> |             | <b>23,942</b> | <b>12.7</b>           | <b>8,527</b>    | <b>13.5</b>               | <b>32,469</b> |
| High-Tech           | Total       | 2,593         |                       | 1,276           |                           | 3,869         |
|                     | Yes         | 361           | 100.0                 | 166             | 100.0                     | 527           |
|                     | No          | 2,232         | 100.0                 | 1,110           | 100.0                     | 3,342         |
| Medium-Tech         | Total       | 5,769         |                       | 1,805           |                           | 7,574         |
|                     | Yes         | 1,029         | 23.8                  | 237             | 19.5                      | 1,266         |
|                     | No          | 4,740         | 26.0                  | 1,568           | 26.6                      | 6,308         |
| Non-Tech            | Total       | 15,580        |                       | 5,446           |                           | 21,026        |
|                     | Yes         | 2,090         | 6.5                   | 670             | 6.7                       | 2,760         |
|                     | No          | 13,490        | 10.3                  | 4,776           | 10.7                      | 18,266        |

To select each sample, we used a sequential random sample selection procedure that sorts the observations in each of the sampling strata in a serpentine fashion based on a set of specified characteristics. This process, outlined by Chromy (1979), imposes implicit stratification beyond the primary strata to ensure the sample is balanced on

the implicit stratification variables. For the KFS, within each sampling stratum, we sorted the records using a serpentine methodology based on the employee size category and three-digit zip code to ensure approximate proportional representation by these dimensions within each stratum.

## APPENDIX B

# DATA COLLECTIONS

### A. BASELINE SURVEY DATA COLLECTION

The Baseline Survey's goal was to establish the Kauffman Firm Survey (KFS) panel by completing surveys with the principals of businesses that met the screening criteria for eligibility as outlined in Chapter I. MPR conducted two pilot tests to examine the eligibility criteria, the questionnaire length and structure, the use of incentives, and the collection of data through a Web survey option with Computer-Assisted Telephone Interviewing (CATI) follow-up. To minimize mode effects, MPR made significant efforts to create Web and CATI versions of the survey that were as uniform as possible. Based on the results of these pilot tests, the Baseline Survey began in July 2005 with a comprehensive screening approach to ensure a "pure" cohort of businesses that began operations in 2004. The findings from the pilot tests also led to streamlining the questionnaire and the decision to offer eligible Baseline KFS respondents a \$50 postpaid incentive.

The Baseline Survey's first contact with businesses was a letter to the principal, which introduced the study, asked for cooperation, and provided Web login information. Accompanying the letter were instructions on how to access the KFS Web survey and a one-page Frequently Asked Questions (FAQs) document that provided answers to common questions sample members were likely to have about the survey, MPR, and the Kauffman Foundation. The correspondence included a toll-free number the business owner could call for additional information.

One week after the letter and accompanying materials were sent, we followed up with a postcard reminder to the businesses. The postcard provided

the survey Web address and encouraged respondents to log on to the Web site and complete the survey. We did not include the login and password information on the postcard, as this would have given potential unqualified respondents access to the Web survey. No mention was made of the telephone follow-up in either the introductory letter or the postcard. This "forced Web" approach was designed to maximize the response on the Web.

During the first two weeks between the advance mailing and the start of CATI operations, only 2 percent to 3 percent of the businesses accessed the Web survey. Most of the businesses that accessed the Web either completed the survey or were screened out as ineligible. This low level of response necessitated a significant effort to complete the remaining interviews by CATI.

In preparation for CATI operations, MPR project staff held comprehensive interviewer training sessions, which emphasized thorough knowledge of the study and its importance to new business owners, criteria for screening out ineligible businesses, effective ways of introducing the study, and refusal avoidance techniques. During the training, based on results of the pilot testing, particular emphasis was placed on refusal avoidance. Interviewers practiced responding to objections, particularly when sample members cited a "lack of time" or indicated they were "not interested." Interviewers also practiced addressing issues of confidentiality and assuring business owners that information they provided would never be identified with their businesses.

One segment of the training was dedicated to dealing effectively with people who answered the

phone but were not the business owner. These “gatekeepers” can constitute a significant barrier to speaking with the business owner. Nonetheless, the Baseline Survey produced a high refusal rate, with 2.5 refusals on average for each completed CATI interview.

We attempted one refusal conversion effort for each business. First, all refusals were put on hold and not contacted for 14 days, so that a refusal letter could be sent to the business. The letter acknowledged the refusal but emphasized the unique nature of the study and the importance of participation. The survey Web site was provided in the refusal letter, along with the sample member’s password and login ID. After the 14-day waiting period, if the sample member had not completed the survey on the Web, interviewers trained in refusal conversion techniques called the business owner. Interviewers converted a total of 538 refusals, representing 8 percent of all completes. In addition, another 1,062 businesses that initially refused were screened out as ineligible. All businesses refusing a second time were finalized.

Efforts to locate businesses that could not be contacted using the information provided by Dun & Bradstreet (D&B) were extensive. Although the D&B database provides names, addresses, and phone numbers of the businesses, the fact that these were new businesses meant that some of them never would become established. Others moved or changed phone numbers, especially those that were home-based businesses.

The KFS locating process used several resources to locate sampled businesses or principals, all of which provided names, addresses, and/or phone numbers of individuals and businesses, or helped verify existing contact information. Through systematic use of these resources, locators sometimes could determine that a business was still operating and find updated contact information for interviewers or for mail contacts. Businesses confirmed as out of business were coded as ineligible.

Additional methods of interacting with Baseline respondents helped to complete surveys and identify additional businesses as ineligible, including a special e-mail sent to businesses upon request. Sample members made these requests either when contacted by telephone or by contacting MPR independently through e-mail. The e-mail included the Web login information and also a concise

version of the FAQs. We also faxed advance materials upon request. The project used specially trained staff to answer questions or provide login and password information when business owners or gatekeepers called the toll-free number. We also left answering machine messages with information about the study, the incentive, and the toll-free number.

As the Baseline Survey effort drew to a close, additional techniques were used to contact businesses and maximize the number of completes. These included sending an additional letter to all businesses that had not yet completed the survey. This letter indicated that the Baseline Survey was drawing to a close, emphasized that the project needed their participation, reminded them of the incentive, and asked them to complete the study. We also focused locating efforts on businesses that had not been worked completely, while finalizing those that had been worked thoroughly as “unlocatable.” Finally, we used a special answering machine message for interviewers to use that emphasized that the study was ending and this was the last opportunity to participate.

A total of 32,469 selected businesses were released for data collection between July 2005 and July 2006. The selected businesses were released in six waves, with each wave worked with similar levels of effort. Data collection ended with 4,928 completed surveys, which translates to a 43 percent weighted response rate. Project staff, the Kauffman Foundation, and the principal investigator discussed the trade-offs between reaching the original goal of 5,000 completes versus the project’s budget constraints. Out of that discussion came the decision to complete at least 4,900 interviews and end data collection on July 29, 2006, making the field period exactly one year. Of the completed surveys, CATI completes accounted for 3,781 (77 percent) and Web completes accounted for 1,147 (23 percent) of the total interviews. More than 375,000 calls were required to complete the Baseline Survey.

Because these 4,928 businesses constituted our panel for future rounds of the KFS, additional efforts were made to maintain contact with panel members. We mailed a “welcome packet” about three months after they completed the Baseline Survey. The KFS packet consisted of a welcome letter, a brochure on the Kauffman Foundation, and a pen with the inscription “Kauffman Firm Survey.”

The welcome letter thanked respondents for completing the survey, and reminded them that this is a multi-year study and that we would be contacting them again. The letter also contained contact information for MPR's survey director as an additional means to contact the researchers. The welcome packet also proved to be an effective tool in getting updated contact information.

## B. FIRST FOLLOW-UP DATA COLLECTION

While the Baseline Survey was characterized by a high refusal rate, a high rate of phone completes compared to Web completes, and a high number of phone calls per complete, the KFS First Follow-Up Survey results were significantly different. Businesses that were recruited in the Baseline Survey proved to be very cooperative in the First Follow-Up, and much more likely to complete the study via the Web.

The First Follow-Up instrument was modified to take into account Baseline Survey responses. In addition, the complex business eligibility module was eliminated in the First Follow-Up, as businesses that completed in Baseline were, by definition, eligible if they were still in operation. Preloaded information was added to the First Follow-Up instrument, such as the business description, owner names from Baseline, and contact information. Some questions asked about increases and decreases in employees, revenues, and expenses, without mentioning the actual Baseline responses.

The First Follow-Up instrument was designed to encourage the same respondent from Baseline to answer the First Follow-Up, assuming the Baseline respondent was still an owner and operator of the business. Other owner-operators could answer for the business if the Baseline respondent had left the firm, was no longer an owner-operator, or was unavailable during the field period.

In the Baseline Survey, business owners were asked for updated contact information, including e-mail addresses. Approximately 85 percent of business owners provided an e-mail address. To take advantage of that, and to continue to encourage the Web component of the study, the contacting procedure was modified in the First Follow-Up. The first contact was an e-mail message that provided information similar to that contained in the Baseline Survey advance letter. It included a link to the KFS

Web survey address, which was complete with the unique login and password for the business, and a brief set of FAQs. One week later, an e-mail reminder was sent to all businesses that had not completed the survey. These initial e-mails were effective in getting almost 25 percent of respondents to complete by Web.

One week later, an advance letter similar to that used with the Baseline Survey was sent to all businesses that had not completed the study. For the 15 percent of the businesses that had not given us e-mail addresses in the Baseline, or whose e-mail addresses had changed or expired, this was the first contact about the First Follow-Up Survey. One week after the advance letter was mailed, a reminder postcard was sent. A week after the reminder postcard, CATI operations began. Close to 35 percent of sample members had completed by Web prior to the beginning of CATI operation.

The First Follow-Up also benefited from using experienced KFS Baseline Survey telephone interviewers. These interviewers were well versed in the study and adapted readily to the minor changes in question wording. Baseline Survey respondents generally remembered participating in the study and required little persuasion to do the second round.

Additional contact procedures and procedures used toward the end of the data collection period in Baseline were also used in the First Follow-Up. Locating procedures were also the same, although fewer businesses required locating than during the Baseline. Refusal conversion procedures also were used, although the total number of refusals was small. In contrast to the Baseline, during which all second refusals were finalized, project staff examined all second refusals during the First Follow-Up and put them into three categories: (1) refusals that might be converted on a third try, (2) businesses that should be finalized for the First Follow-Up but could be tried for the Second Follow-Up, and (3) businesses that should be finalized and not contacted again.

Data collection on the First Follow-Up Survey began in June 2006 and ended in January 2007. A total of 3,998 businesses completed the First Follow-Up, with 59 percent completing by Web, compared to 23 percent in the Baseline Survey. This transitioning of the majority of respondents from phone to Web greatly reduced the effort required to collect data. In contrast to the Baseline Survey, for

## Appendix B: Data Collection Methods

which more than one hundred calls were made per phone complete, the First Follow-Up required only twenty-five calls per completed phone interview. The percentage of businesses verified as out of business at the time of First Follow-Up was 7.5, and the final refusal rate was slightly less than 3 percent. The response rate was 89 percent after sampling weights were applied.

To maintain the panel for the Second Follow-Up, a “cohort maintenance” packet was mailed to all First Follow-Up respondents. As in the Baseline welcome packet, this packet contained a letter thanking respondents for their participation, indicated that MPR would be contacting them for an additional survey, and included a gift of Post-it notes with the Kauffman Firm Survey name printed on them.

In summary, the KFS data collection illustrates the following points: (1) recruiting new businesses into a panel study is a significant challenge requiring careful planning, excellent interviewer training, and continuing effort; (2) e-mail contacts coupled with an available Web survey can be an effective method of maintaining a panel of new businesses; and (3) using items such as cohort maintenance packets and incentives, and collecting updated contact data help maintain the panel and the continued cooperation of its members.

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