

Thumbtack

2015 THUMBTRACK.COM SMALL BUSINESS ECONOMIC SENTIMENT SURVEY: METHODOLOGY & ANALYSIS

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May, 2015

With special thanks to Josh Wright, Carl Riccadonna, and Michael McDonough of Bloomberg for generously lending their support and expertise to this project, and Alex Brill, Ike Brannon, Jason Cummins, and Kris Dawsey for their counsel and guidance.

Introduction

Thumbtack is an online marketplace that connects independent service providers with customers who are looking to accomplish personal projects that are central to their lives.

For the last two-and-a-half years, Thumbtack has surveyed the professionals who use the site, asking for their views on current economic conditions in their area. The goal of the survey is to provide insights into a relatively unexamined portion of the American economy – very small service businesses.

This survey is unique in part because it reaches a segment of the economy that is difficult and largely cost-prohibitive to reach by survey administrators. While other business surveys focus on larger employer businesses, over half the respondents in the population surveyed by Thumbtack are sole proprietors.¹ These very small businesses can be difficult for government statistical agencies or private institutions to reach due to the nature of their organizational form or size.

Many of these businesses are highly mobile sole proprietors who aren't likely to be members of business trade organizations. Others are side or seasonal businesses that may be missed by government statisticians. Still others may not have the time or resources to participate in more established surveys.

This survey is also unique because of its large sample size. The survey is the first of its kind to reach tens of thousands of small business owners on a regular basis, allowing researchers to gain insight into the economic condition of small businesses on a monthly basis not only at the national scale but also at the regional, state, county, or city level.

By surveying these independent professionals, Thumbtack hopes, for the first time, to provide insight into the mindset of tens of thousands of independent owner-operators of small service businesses every month. As other surveys of small business owners have shown, these firms can be important bellwethers for the United States economy, providing insight into the direction of job growth, inflation, and output before other economic indicators catch these changes.²

Background on survey population

Thumbtack's service professionals operate in all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Demographic and educational status as well as veteran status and gender are tracked in the survey, and the profile of respondents and how they compare to business owners nationally are shown in Appendix A.

¹ Two benchmark small business surveys are the monthly survey by the National Federation of Independent Businesses, which includes between 5 and 10 percent sole proprietors, and the Gallup/Wells Fargo small business survey, which looks at businesses with a market cap below \$20 million (and doesn't include size breakouts though is weighted by business size).

² See for example Michael J. Chow: "Small Business Indicators of Macro-Economic Performance: An Update," published by the National Federation of Independent Businesses in July 2012 at <http://www.nfib.com/Portals/0/PDF/AllUsers/research/studies/macro-economic-performance-nfib-201207.pdf>

The survey population is almost exclusively service businesses. While the industrial mix of Thumbtack’s survey respondents is not perfectly representative of the population of business owners nationwide, the distribution is similar:

NAICS Code	NAICS Category	Percent of all firms	Percent of service firms	Percent of respondents in survey
11	Agriculture, Forestry, Fishing and Hunting	0.9%	--	--
21	Mining, Quarrying, and Oil and Gas Extraction	0.5%	--	--
22	Utilities	0.1%	--	--
23	Construction	9.9%	10.6%	16.5%
31-33	Manufacturing	2.1%	--	0.3%
42	Wholesale Trade	2.7%	--	--
44-45	Retail Trade	9.8%	10.5%	0.4%
48-49	Transportation and Warehousing	4.2%	4.5%	1.5%
51	Information	1.5%	1.6%	1.1%
52	Finance and Insurance	4.0%	4.2%	0.0%
53	Real Estate and Rental and Leasing	9.1%	9.7%	1.3%
54	Professional, Scientific, and Technical Services	13.5%	14.4%	17.6%
55	Management of Companies and Enterprises Administrative and Support and Waste	0.2%	--	--
56	Management and Remediation Services	7.9%	8.5%	22.4%
61	Educational Services	2.3%	2.5%	7.5%
62	Health Care and Social Assistance	9.2%	9.8%	4.2%
71	Arts, Entertainment, and Recreation	4.5%	4.8%	5.2%
72	Accommodation and Food Services	3.3%	3.6%	3.9%
81	Other Services (except Public Administration)	14.1%	15.1%	17.2%
99	Industries not classified	0.0%	--	--

All firms percentages calculated from 2012 Census data. Non-employer data come from the Non-Employer Statistics data series found at <http://www.census.gov/econ/nonemployer/>; employer data comes from the County Business Patterns found at <http://www.census.gov/econ/cbp/>. See the methodological notes at the Non-Employer data series for why the County Business Patterns data series was chosen.

We considered weighting the data to compensate for the industries where Thumbtack professionals were over- or under-represented. We looked at various indicators of industry size, from the United States Census and the Bureau of Labor Statistics, including the Economic Census, County Business Patterns, and the Survey of Business Owners. Unfortunately, while several of these offer annual updates, the updates come with a significant lag, so any weights we used would always be two or more years out of date.

Further arguing against using weights was the fact that we receive a very small number of responses from some industries in the survey such as Retail Trade of Manufacturing. Weighting these responses to equal their share of output or their share of firms nationally would’ve given the small number of responses outsized influence in the survey, which is fundamentally a survey

of service providers. Finally we looked at other similar surveys, most importantly the NFIB monthly survey, and found that they did not assign weights for industries, but instead were transparent with the share of the survey each industry represented.

We settled on a similar approach.

Survey collection

Survey responses are collected through a prompt shown to professionals active on Thumbtack’s website after they bid on a new job. The survey consists of 24 mostly multiple-choice questions, which can be seen at Appendix A.

Survey results were collected at the end of each quarter beginning in December 2012. Starting in March 2015, survey results were collected monthly, and the survey period was changed to coincide with the survey collection period used by the Bureau of Labor Statistics for the Employment Situation Report.³

The number of responses has grown over time as Thumbtack’s marketplace and ability to collect responses have grown. Survey dates, durations, and number of responses in each survey period are shown below:

Survey Period	Survey Start Date	End Date	Number of usable responses
December, 2012	12/17/2012	1/12/2013	2019
March, 2013	3/5/2013	4/9/2013	3438
June, 2013	6/12/2013	7/3/2013	989
September, 2013	9/12/2013	10/29/2013	4263
December, 2013	12/13/2013	12/20/2013	3610
March, 2014	3/17/2014	3/31/2014	8646
June, 2014	6/19/2014	7/2/2014	11,997
September, 2014	9/15/2014	9/29/2014	16,956
December, 2014	12/17/2014	1/7/2015	18,332
March, 2015	3/10/2015	3/23/2015	21,676
April, 2015	4/16/2015	4/24/2015	14,652

Response rates for the two most recent survey periods are shown below. Active professionals are candidates to see the prompt for the survey. Note that the prompt for the survey is shown in rotation with other prompts, and therefore the precise number of professionals who saw the prompt is impossible to know. Usable responses are what we are left with after throwing out incomplete or duplicate responses.

³ Due to technical issues the March and April 2015 surveys did not strictly follow these guidelines – the March survey period was two weeks, and the April survey came a week later than the scheduled dates.

Month	Professionals active on Thumbtack during survey period	Total Responses	Usable Responses	Usable Response Rate
March	80,153	23,494	21,676	27 percent
April	70,924	15,810	14,652	21 percent

Index construction

Based on the responses to the survey in each period, Thumbtack and Bloomberg have constructed two indexes that we hope will be able to track activity among small service professionals over time – a Small Business Sentiment Index and a Small Business Inflation index.

These Indexes represent our current best estimates of where the strongest signal can be taken from the survey data collected to date – we expect to update the weights applied and formulas as more data comes in.

An individual index number is computed for each question in Appendix A in each period using the following formulas:

- For questions with three point scales:
 - $(\%_positive_response) + (0.5 * (\%_neutral_response))$
- For questions with a five point scale:
 - $(\%_positive_response + \%_very_positive_response) + (0.5 * (\%_neutral_response))$
- For questions with true/false answers, only the percentage of positive answers was used.

These indexes are combined into a **Sentiment Index**, comprised of the following 8 questions, each weighted accordingly:

- Current Financial Condition (0.17 weight)
- Financial Condition in 3 months (0.17 weight)
- Economic Condition in 3 months (0.08 weight)
- Profitability Expectations in 3 months (0.13 weight)
- Job openings in the past 3 months (0.08 weight)
- Employment change expected in 3 months (0.17 weight)
- Expected credit conditions (0.08 weight)
- Expected capital expenditures (0.13 weight)

A separate **Inflation Index** is composed of the following 3 questions with weights in parenthesis:

- Price Expectations (0.5 weight)
- Inflation pass-thru (0.333 weight)
- Wage plans (0.167 weight)

In addition to the national index scores, states and cities were chosen for comparison with each other. Cities are defined by the borders of their Core-Based Statistical Area, as defined by the Office of Management and Budget.⁴ Only cities and states with more than 50 respondents in any given period were chosen for comparison.

The complete survey can be found in Appendix A along with a mapping to individual index components.

Predictive value

To show if there was any meaningful signal that could be extracted from survey results to date, we compare the Small Business Sentiment Index to a handful of economic indicators, as well as the rate of change for a selection of these indicators. The Index's predictive power as a leading or lagging indicator was also tested. Correlation coefficients for these comparisons can be found in Appendix C.

Preliminary results show that the Sentiment Index most strongly correlates with the various measures of job growth, especially the Household Survey from the Bureau of Labor Statistics, and measures of personal consumption, most strongly Real Personal Consumption Expenditures on Services from the Bureau of Economic Analysis. The Index's correlation with other consumer and business sentiment surveys, such as the University of Michigan, the National Federation of Independent Businesses, and the ISM Business Activity Index, to date has been generally poor.

Its performance as a leading indicator was generally worse.

Although to date we have not collected enough months of data to draw conclusive results regarding the predictive value of the Thumbtack survey, we will refine our measures as more data comes in to see which measure is the best at predicting broader economic trends.

Conclusion

Thumbtack has created a one-of-its-kind Index of Small Business Sentiment. We plan on consistently sampling a large group of owner-operators of small businesses in order to learn how these businesses are reacting to and acting as a bellwether of United States economic conditions.

For more information on this survey or other work by Thumbtack, please contact Jon Lieber at jon.lieber@thumbtack.com.

⁴ CBSA list can be seen at: <https://www.whitehouse.gov/sites/default/files/omb/bulletins/2013/b13-01.pdf>

Appendix A

Number of employees	All Firms*	Thumbtack firms
None	75%	55%
1-4	13%	34%
5-9	5%	5%
10-19	3%	2%
20-49	2%	1%
50+	1%	1%
Blank	--	1%

Gender	Businesses Nationally**	Thumbtack Survey Businesses
Female	28.8%	36.2%
Male	51.3%	61.2%
(blank)		2.6%

Age of Business Owner		
Under 25	2.1%	4.49%
25-34	10.3%	22.99%
35-44	20.9%	26.80%
45-54	29.1%	25.14%
55-64	23.6%	15.48%
65 or above	12.3%	3.64%
(blank)		1.46%

Race or Origin		
Asian	5.7%	2.4%
Black or African American	7.1%	12.1%
Hispanic, Latino, or Spanish	9.2%	10.6%
Other	1.3%	5.6%
White (Caucasian)	83.4%	66.9%
(blank)		2.4%

Highest Level of Education obtained

No high school	5.2%	1.05%
High school	20.6%	17.58%
Technical college	6.3%	14.45%
Community college or some college	22.9%	18.72%
Undergraduate degree	26.4%	31.50%
Master's or doctoral degree	18.5%	15.13%
(blank)		1.56%

Service in Armed Forces

No, I have never served on active duty in the U.S. Armed Forces, military Reserves, or National Guard	87.7%	86.8%
Yes, I am an active duty member of the U.S. Armed forces	--	0.52%
Yes, I currently serve in the military Reserves or the National Guard	--	0.76%
Yes, I previously served on active duty in the U.S. Armed Forces, military Reserves, or National Guard but I am now a civilian	12.2%	9.96%
(blank)		1.94%

*Source: 2012 employer and non-employer data found at <http://www.census.gov/econ/nonemployer/> and <http://www.census.gov/econ/cbp/>.

**Source: U.S. Census Bureau, 2007 Survey of Business Owners, found at: <https://www.census.gov/econ/sbo/getsof.html?07cb>

Appendix B

Survey Questions:

How would you rate your company's financial situation today?

How do you think your company's financial situation will be three months from now?

How do you think business conditions in the general economy will be in three months, compared with the conditions now?

How do you expect your company's revenues to change over the next three months?

How do you expect your company's profitability (net earnings after taxes) to change over the next three months?

How do you expect the prices you charge your customers or clients to change over the next three months?

If your costs increased 5% today, how much of that cost increase could you pass on to customers through higher prices?

Have you filled or attempted to fill any full-time or part-time job openings over the past three months?

How difficult or easy was it to fill the full-time or part-time job opening(s) over the past three months?

How do you expect the total number of employees in your business to change over the next three months?

How do you expect your average employee compensation to change over the next three months?

During the past three months did you:

- Seek credit and receive the full amount needed
- Seek credit and receive most of the amount needed
- Seek credit and receive some of the amount needed
- Seek credit but refuse it because of the terms or conditions attached
- Seek credit but were turned down or denied
- Not seek credit because you didn't need it
- Not seek credit because you didn't think your loan application would be approved

Do you expect to find it harder or easier to get loans in three months than it is now?

How do you expect your capital expenditures* to change over the next three months?

How do you expect your expenditures to improve your or your employees' training, education or expertise about your business to change over the next three months?

What problems do you face in doing business today? (please check all that apply)

- Access to credit
- Interest rates
- Access to health care or health care costs
- Competition from big business and overseas
- Uncertain economic conditions
- Consumer confidence
- Cost/quality of labor
- Inflation
- Poor sales

- Complying with government regulations
- Taxes
- Other

What is the most challenging problem facing your business today? (choose one)

- Access to credit
- Interest rates
- Access to health care or health care costs
- Competition from big business and overseas
- Uncertain economic conditions
- Consumer confidence
- Cost/quality of labor
- Inflation
- Poor sales
- Complying with government regulations
- Taxes
- Other

How many people does your business employ? Please include only paid employees, not contractors.

What is your gender?

What is your age?

What is your race or origin?

What is the highest level of education you have reached?

Are you currently serving or have you ever served on active duty in the U.S. Armed Forces, military Reserves, or National Guard?

Please let us know how your business is being affected by the current economy.

Appendix C

Correlations with levels:

	<i>TT Index</i>	<i>6mo lag</i>	<i>12mo lag</i>	<i>6mo lead</i>	<i>12mo lead</i>
Real Gross Domestic Product, 3 Decimal	0.52684	0.783353	0.678229	0.635743	-0.15938
Real Personal Consumption Expenditures	0.638265	0.716923	0.750046	0.460747	0.068847
Real Personal Consumption Expenditures: Services	0.661142	0.696584	0.775081	0.404574	0.110793
All Employees: Total nonfarm	0.753244	0.739371	0.743767	0.343171	0.362416
All Employees: Total Private Industries	0.749662	0.734021	0.743153	0.340487	0.364645
All Employees: Private Service- Providing	0.744713	0.731976	0.733557	0.34951	0.361143
Civilian Employment	0.775968	0.766927	0.722705	0.234032	0.435847
Civilian Unemployment Rate	-0.71268	-0.76398	-0.7677	-0.32516	-0.42522
Real Retail and Food Services Sales	0.659848	0.733182	0.688684	0.507244	0.167413
Retail Sales: Total (Excluding Food Services)	0.516958	0.730462	0.703362	0.511992	-0.02458
Real personal consumption expenditures: Services: Household consumption expenditures	0.673807	0.686671	0.778647	0.391133	0.142122
Real final sales to domestic purchasers	0.598788	0.786719	0.719649	0.516298	-0.01817
University of Michigan: Consumer Sentiment	-0.04029	0.712237	0.444373	-0.05426	0.098556
ISM Manufacturing: PMI Composite Index	-0.01268	0.592425	0.429483	0.736139	-0.61082
ISM Non-manufacturing: Business Activity Index	0.124947	0.856553	-0.31142	0.711058	-0.12271
ISM Non-manufacturing: NMI Composite Index	0.215398	0.794281	-0.15165	0.697851	-0.16743
NFIB optimism	0.532106	0.634713	0.079264	0.447065	0.209597

Correlations with rates of change:

	<i>TT Index</i>	<i>6mo lag</i>	<i>12mo lag</i>	<i>6mo lead</i>	<i>12mo lead</i>
<i>Real Gross Domestic Product, 3 Decimal</i>	<i>-0.24248</i>	<i>0.509703</i>	<i>-0.58923</i>	<i>0.879134</i>	<i>-0.3688</i>
<i>Real Personal Consumption Expenditures</i>	<i>0.45455</i>	<i>0.215634</i>	<i>0.120033</i>	<i>0.809622</i>	<i>-0.1934</i>
<i>Real Personal Consumption Expenditures: Services</i>	<i>0.587245</i>	<i>0.017596</i>	<i>0.450623</i>	<i>0.474669</i>	<i>-0.26556</i>
<i>All Employees: Total nonfarm</i>	<i>0.577954</i>	<i>0.500493</i>	<i>0.177777</i>	<i>0.653475</i>	<i>0.245092</i>

<i>All Employees: Total Private Industries</i>	0.59149	0.419121	0.154501	0.625864	0.275905
<i>All Employees: Private Service-Providing</i>	0.385712	0.493699	-0.09855	0.718536	0.208588
<i>Civilian Employment</i>	0.394427	0.196849	0.130673	-0.61121	0.480118
<i>Real Retail and Food Services Sales</i>	-0.53188	0.345263	-0.45875	0.498289	-0.2277
<i>Retail Sales: Total (Excluding Food Services)</i>	-0.80806	0.275512	-0.43276	0.167226	-0.3163
<i>Real personal consumption expenditures: Services: Household consumption expenditures</i>	0.674794	-0.07139	0.438348	0.387517	-0.15001
<i>Real final sales to domestic purchasers</i>	0.20598	0.747908	-0.41167	0.922799	-0.34653
<i>University of Michigan: Consumer Sentiment</i>	0.111978	0.13614	-0.13569	-0.74873	0.499871
<i>ISM Manufacturing: PMI Composite Index</i>	-0.70806	0.228409	-0.22089	0.551307	-0.47463
<i>ISM Non-manufacturing: Business Activity Index</i>	-0.46835	0.660991	-0.39351	0.225616	0.050124
<i>ISM Non-manufacturing: NMI Composite Index</i>	-0.52533	0.683942	-0.35918	0.307525	-0.17139