Consumer Confidence and Social Environment

Considering the role of social media in our daily lives, this research aims to evaluate whether consumer confidence measurements can leverage available social data as a source for answers to the survey's questions.

Consumer Confidence is based on the following components:

1. degree of optimism about the economy

2. consumers' feeling about employment

3. consumers' feeling about future spending

Current methodologies face issues such as 1) data validity for the survey time not now, 2) long-time process 3), and respondents claims reliability. Social networks have the potential of being a source of 1) real-time data, 2) quick access to data, and 3) people's expression not answers. In order to exploit such capability, we need to understand the current methods, mapping and defining them for online social sphere, analyzing possible results, and compare it with conventional results.

Definition

The two definitions below, borrowed from Wikipedia and The Conference Board, are considered as the basics for this research.

1. Consumer Confidence is an economic indicator, which measures <u>the degree of optimism</u> that consumers <u>feel</u> about the <u>overall state of the economy</u> and their <u>personal financial situation</u>. How confident people feel about <u>stability of their incomes</u> determines their <u>spending activity</u> and therefore serves as one of the key indicators for the overall shape of the economy.

2. The index is based on consumers' <u>perceptions</u> of <u>current business</u> and <u>employment conditions</u>, as well as their <u>expectations for six months</u> hence regarding business conditions, employment, and <u>income</u>.

Current Methodologies and Implications[*]

The index is measured through conducting a survey sent to almost 5000 households in the U.S. There are several agencies – doing it independently or being recruited by other well-know organizations – that design and manage the survey process. The main question however is how consumers feel about the current and future state of economy as well as their financial situations.

The history of such survey goes back to 1967 when The Conference Board released the first research findings. The non-profit business group conducted the survey bi-annually by sending over 50 questions to the representative samples. Nonetheless, the survey's questions, time-span, and the number of questions have changed since then due to market conditions.

Needless to say that economy conditions forced such data to be available as quick and reliable as possible. To meeting the speed need, many organizations reduced the number of questions. Gallup decreased the number of questions to two in order to expedite the whole process and be able to deliver monthly or daily results (Saad 2008). Decreasing the timespan also can help in achieving more reliable data since the longer the survey takes; the more likely respondents change their minds.

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[*] This research is about Consumer Confidence Index in the U.S. Other countries and regions are out of the scope of this paper.

Moreover, the indices reflect the past, resulting in unreliability in two possible directions:

1) A small sample size where the collected data is not representative of the overall population.

2) Time constraints force the polling firms to shorten the number of questions resulting in data that does not cover enough material or scope

It is also debatable that people's social action might be different from what they answer in a survey. If so, it would again negatively impact the reliability of the economic indicator.

Social Data as Resource

Needles to say that the true need is a representative, reliable, and valid data. What we want are indicators that are collected in real-time, covered a wider spectrum of questions, and compatible with people's social action.

To achieve such results, we need to address three following issues:

1) Access to more representative sample(s)

2) Real-time data

3) Valid data

Considering online social data, the question is whether we can use such data as a basis for consumer confidence analysis. Could it be representative enough? What are the proper techniques for filtering it out, etc.?

Looking at the usage of Twitter and Facebook shows that more and more people use social networks and speak up in the virtual world. By March 2011, Twitter handles a billion tweets every week (Smith 2011).

Table 1 Facebook Statistics

| Facebook	More than 800 million active users More than 50% of our active users log on to Facebook in any given day Average user has 130 friends	More than 900 million objects that people interact with (pages, groups, events and community pages) Average user is connected to 80 community pages, groups and events On average, more than 250 million photos are uploaded per day
Twitter (14 March 2011)	17 million tweets sent on this date	**460,000.** Average number of new accounts per day over the last month
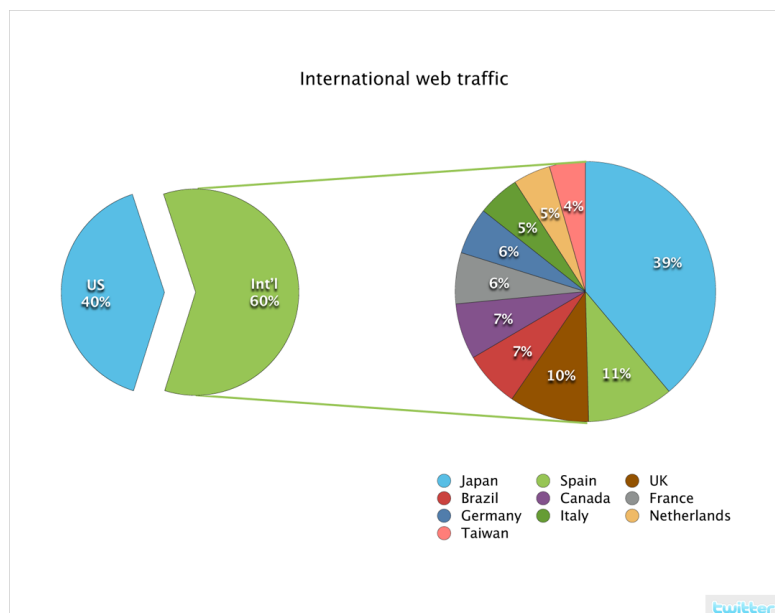
Figure 1 Twitter Statistics

Overall Twitter and Twitter Search Traffic
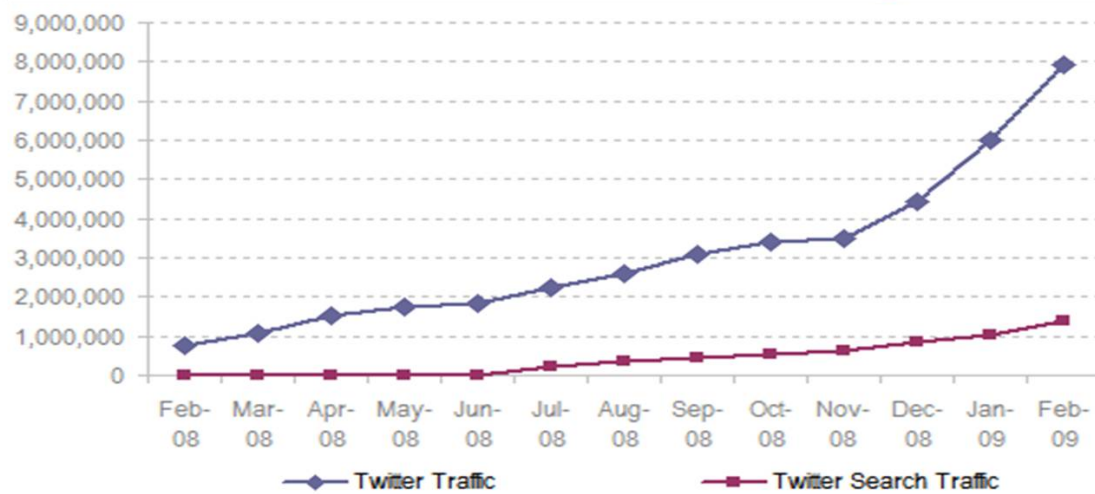(Unique Visitors to and Unique Searches on Twitter.com, Feb. '08 - Feb. '09)   compete.com

Figure 2 Twitter and Twitter Search Traffic

Can we leverage this growing data as a reliable resource for measuring consumer confidence? How likely is it that people tweet/post[†] about their feeling towards the economy's situation? Is the tweets/posts are a good representative sample of the population?

The survey focuses on five main topics:

  i.   current business conditions

  ii.   business conditions for the next six months

  iii. current employment conditions

  iv.   employment conditions for the next six months

  v.   total family income for the next six months

Although, the whole survey topic stays the same, various agencies such as Nielsen, Conference Board, University of Michigan, Gallup, etc. might send different type and number of questions to people (see Appendix A and B).

[†] Facebook posts

Gallup reduced the number of questions to two to achieve faster results. The two questions mainly relies on people's perception of the current economy and the economy's direction. By doing so, Gallup could conduct the survey on a daily basis and it claims that the trend almost matches with The Conference Board and Reuters/University of Michigan polls (Saad 2008).

If we were able to exploit the online data as a resource for consumer confidence analysis, we need to define how to tap into such data. Utilization process can be defined as following:

1. Translate survey questions to search key-terms

2. Using social networks' APIs for filtering out the data

3. Curating and organizing data

4. Data analysis

Further, I will explain each step in more details for Twitter. The logic will stay the same for other social networks such as blogs and Facebook.

Step 1: Translating Questions to Search Keywords

Since the list of questions varies for each agency, I picked a list that can help defining search keywords (see Appendix A). For the purpose of this paper, I will complete a table (Table 2 Survey Questions and Search Terms) that maps each question to one or more keyword(s). Such table is used in further steps for finding and filtering out tweets, posts, comments, etc.

Question	Search Keywords
About the big things people buy for their homes -- such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good time or a bad time for people to buy major household items?	buy/purchase + refrigerator/stove/television/TV/households/etc. + time/currently/etc. + good/bad/terrible/perfect/etc.
Generally speaking, do you think now is a good time or a bad time to buy a house?	buy/purchase + house/home/real estate/realestate/etc. + time/currently/etc. + good/bad/terrible/perfect/etc.
Speaking now of the automobile market -- do you think the next 12 months or so will be a good time or a bad time to buy a vehicle, such as a car, pickup, van, or sport utility vehicle?	buy/purchase + car/automobile/etc. + time/currently/in 12 months/in 1 year/this year/etc. + good/bad/terrible/perfect/etc.

Table 2 Survey Questions and Search Terms

Step 2: Using Social Network APIs as a Filtering System

Once the search table is ready, it requires to be 1) maintained in a regular basis 2) used as the input for search APIs of social networks such as Twitter, Facebook, etc. in order to filter out the huge amount of their data during a specific time period.

Step 3: Data Curating and Organization

Needles to say that we deal with huge amount of data even after applying search terms. In order to be used correctly, such data requires adequate curation like proper organization and retrieval, applying useful tags, and appropriate metadata.

Step 4: Data Analysis and Comparison

Once we have organized and accessible data, it is time to analyze it and find likely patterns. Any discovered pattern should be compared with the actual survey at the same time as a means to find if there is any possible compatibility.

Appendix A: Consumer Confidence Survey Questions

University of Michigan Consumer Sentiment Index

1. We are interested in how people are getting along financially these days. Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?

2. Why do you say so?

3. Now looking ahead - do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?"

4. During the next 12 months, do you expect your (family) income to be higher or lower than during the past year?" and "By about what percent do you expect your (family) income to increase during the next 12 months?

5. How about the next year or two -- do you expect that your (family) income will go up more than prices will go up, about the same, or less than prices will go up?

6. During the last few months, have you heard of any favorable or unfavorable changes in business conditions?" and "What did you hear?

7. During the last few months, have you heard of any favorable or unfavorable changes in business conditions?" and "What did you hear?

8. Would you say that at the present time business conditions are better or worse off than they were a year ago?

9. And how about a year from now, do you expect that in the country as a whole business conditions will be better or worse than they are at present, or just about the same?

10. Now turning to business conditions in the country as a whole -- do you think that during the next 12 months we'll have good times financially, or bad times or what?

11. Looking ahead, which would you say is more likely -- that in the country as a whole we'll have continuous good times during the next 5 years or so, or that we'll have periods of widespread unemployment or depression, or what?

12. How about people out of work during the coming 12 months -- do you think that there will be more unemployment than now, about the same, or less?

13. No one can say for sure, but what do you think will happen to interest rates for borrowing money during the next 12 months -- will they go up, stay the same, or go down?

14. During the next 12 months, do you think that prices in general will go up, or go down, or stay where they are now?" and "By about what percent do you expect prices to go up, on the average, during the next 12 months?

15. As to the economic policy of the government -- I mean steps taken to fight inflation or unemployment -- would you say the government is doing a good job, only fair, or a poor job?

16. About the big things people buy for their homes -- such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you

think now is a good time or a bad time for people to buy major household items?

17. Why do you say so?

18. Generally speaking, do you think now is a good time or a bad time to buy a house?

19. Why do you say so?

20. Speaking now of the automobile market -- do you think the next 12 months or so will be a good time or a bad time to buy a vehicle, such as a car, pickup, van, or sport utility vehicle?

21. Why do you say so?

The Middle Tennessee Consumer Confidence Survey

1. Turning first to business conditions in the country as a whole, would you say that business conditions in the country as a whole are good, bad, or somewhere in between?

2. And how about 6 months from now, do you expect that in the country as a whole business conditions will be better than they are today, worse than they are today, or just about the same?

3. Now turning to business conditions in Middle Tennessee, would you say that business conditions in Middle Tennessee are good, bad, or somewhere in between?

4. And how about 6 months from now, do you expect that in Middle Tennessee business conditions will be better than they are today, worse than they are today, or just about the same?

5. Now turning to the availability of jobs in Middle Tennessee, would you say that jobs are easy to find, can be found with effort, or hard to find?

6. How about in the next 6 months, do you expect that in Middle Tennessee there will be more job openings than there are now, fewer job openings than there are now, or about the same number of job openings?

7. We are interested in how people are getting along financially these days. Would you say that you, and any family members living with you, are better off financially than you were a year ago, worse off financially than you were a year ago, or about the same?

8. Now looking ahead, do you think that 12 months from now you, and any family members living with you, will be better off financially, worse off financially, or about the same?

9. About the big things people buy for their homes -- such as furniture, a refrigerator, stove, television, and things like that, generally speaking, do you think now is a good time for people to buy major household items, a bad time, or somewhere in between?

10. How about buying a house? Is now a good time to buy a house, a bad time to buy a house, or somewhere in between?

11. How about buying a car? Is now a good time to buy a car, a bad time to buy a car, or somewhere in between?

Online Resources:

1. http://www.gallup.com/poll/104035/gallups-consumer-confidence-polling-explained.aspx

2. http://www.sca.isr.umich.edu/documents.php?c=ty

3. http://www.slate.com/articles/news_and_politics/explainer/2001/02/what_is_the_consumer_confidence_index.html

4. http://en.wikipedia.org/wiki/Consumer_confidence

5. http://en.wikipedia.org/wiki/Consumer_confidence#Consumer_Confidence_Index

6. http://www.bls.gov/cex/

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Croushore, Dean. "Do consumer-confidence indexes help forecast consumer spending in real time? ." *The North American Journal of Economics and Finance* 16, no. 3 (2005): 435-450.

Saad, Lydia. "Gallup's Consumer Confidence Polling Explained." *Gallup.* January 30, 2008. www.gallup.com (accessed November 1, 2011).

Smith, Catharine. "Twitter User Statistics Show Stunning Growth." *The Huffington Post.* March 14, 2011. http://www.huffingtonpost.com/2011/03/14/twitter-user-statistics_n_835581.html (accessed November 1, 2011).