**Qualifying Examination**

Methodology - Status

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This paper asserts three research methods that are represented in status literature and portraits related benefits and drawbacks of each approach. Based on the assessment, measures to determine the status of Universities in Taiwan are discussed.

**Survey Research**

The survey is a widely used social science data-gathering technique and applied to examine a broad range of insights, such as behavior, attitudes, beliefs, opinions, characteristics, expectations, self-classification and knowledge (Neuman, 2014; Tharenou, Donohue, & Cooper, 2007). Surveys take many forms such as phone interviews, internet opinion polls, and various types of online- as well offline questionnaires (Neuman, 2014) and are well represented in the field of organizational status (Bidwell, Won, Barbulescu, & Mollick, 2015; Graffin, Wade, Porac, & McNamee, 2008; Groysberg, Polzer, & Elfenbein, 2011; Phillips & Zuckerman, 2001).

In a study on middle-status conformity in the market for investment advice, Phillips & Zuckerman (Phillips & Zuckerman, 2001) measured status based on analyst rankings provided by Institutional Investor magazine. Annually, the survey asks 3,900 respondents to list and rank their selections of best analysts in multiple market categories (Institutional Investor, 2018). Respondents are asked to name up to four analysts and their relative rank. Institutional Investor calculates an analyst’s overall score by summing the number of times an analyst is listed, weighted by the rank he is assigned and the asset size of the institution. In similar fashion, Groysberg (Groysberg et al., 2011) operationalized analyst global status with the annual ranking of Institutional Investor magazine.   
Bidwell et al. (Bidwell et al., 2015) studied the benefits of employers status with a variable that derived from a status ranking published by Vault.com. Vault compiles annual prestige rankings of accounting-, consulting-, law-firms and banks by sending surveys to 2,500 professionals in each industry, asking them to rate the prestige of the firms that they are familiar with on a scale of 1 to 10. Respondents do not rate their own firms and are asked not to rate firms which they are not familiar with. Rankings are based on each firm’s average rating in the survey (Vault, 2018).

Benefits of survey research lie most obvious in its practical approach. Commonly, a large number of respondents provide their answers to standardized questions. Additional efforts for coding is low, to the extent that the survey includes closed questions. Furthermore, surveys measure many variables and test multiple hypotheses simultaneously. Surveys allow to infer temporal order from questions about past behavior, experiences, or characteristics. In addition, surveys allow researchers to anticipate possible alternative explanation by adding further question within the same questionnaire.

Further benefits merely depend on the specific survey method. While the response rate of personal- and telephone interviews is high, mail-surveys face a low rate of response (Frankfort-Nachmias & Nachmias, 2002). The same accounts for the applicability of survey research to heterogeneous populations as well as control over the interview situation, which is both high for personal- and telephone interviews, but low for mail-questionnaires (Neuman, 2014). Besides above-mentioned benefits, a general weakness of surveys is, that it provides researchers only with cross-sectional data on a defined sample. Repeated surveys to gather longitudinal data, result in additional efforts and costs (Tharenou et al., 2007). Further drawbacks may occur from sampling errors, coverage-, nonresponse- as well as from measurement-errors (Neuman, 2014). Measurement errors can arise by respondents in socially desirable- and acquiescent responding, they may also arise from the interviewer, due to careless interviewing or -data recording.

Following earlier work of Bidwell (Bidwell et al., 2015), this paper applies survey research to measure the prestige ranking of Universities in Taiwan to proxy organizational status. This work follows six steps of conducting a survey based on Neuman (Neuman, 2014). After defining the research question, the most suitable type of survey is selected from the above-mentioned types. Considering benefits and drawbacks, the present research measures the status of Universities in Taiwan as an online-questionnaire. Next, the survey questions are defined, and response categories are set.

Special care has to be taken on the development of the survey questions to provide a valid and reliable measure. Two key principles guiding the writing of good survey questions, namely avoiding possible confusion and keeping the respondent’s perspective in mind (Neuman, 2014). In order to measure the prestige of Universities in Taiwan respondents are asked to rate the prestige of the Universities that they are familiar with on a scale of 1 to 10. Respondents are requested not to rate the Universities they are affiliated with. Even though it is assumed that the question is equally clear, relevant, and meaningful to all respondents, a so-called pilot survey is conducted (Neuman, 2014) which concluded the second phase of a survey.

Next, the population is defined, and a sample frame is established. In order to improve the external validity namely the generalizability of the present survey, a specific probability sampling method is applied. In stratified sampling, the population is divided into mutually exclusive subgroups. The subjects for the study are then selected randomly from each stratum (Tharenou et al., 2007). To survey the prestige of Taiwanese Universities, the subgroups consist of under-graduate, graduate- as well as post-graduate students and assistant professors of all 161 Taiwanese Universities, listed by the Ministry of Education (Ministry of Education, 2018). In phase four, the online-questionnaires are distributed to the sampled individuals and the data recording is supervised. After completion, the data are checked for consistency and statistical analysis is performed. For the latter, the average of the prestige scores is calculated, and the Universities are ranked accordingly. The rank 1 denotes for the most prestigious University, while the rank 162 represents the least prestigious school. Last, results and applied methods are described. Findings are presented and discussed.

**Nonreactive Research**   
The approach of nonreactive research takes unobtrusive measures and infers from evidence to behavior or attitudes without interfering with the object of research (Neuman, 2014). In research of organizational status, a number of studies apply accretion measures which represents a non-reactive measure of the residue of organizations, such as the analysis of newspaper advertisements. Researcher use reports in the data source newspapers, not only to analyze the content of articles but also as a way to identify and count key events (Neuman, 2014; Podolny, 1993).   
For example Podolny (Podolny, 1993) proxied status from announcements in major financial papers and trade journals that listed the issuer, content, and syndicate members of a given security offering. In a setting of American investment banks, Podolny theorized that banks are extremely conscious of the status ordering within that syndicate. Syndicate banks are arranged hierarchically into columns within an announcement, the positions more towards to the top are more prestigious. The author assumed that when the announcement places the bank in a lower positions than the bank believes is appropriate, the bank will withdraw from the syndicate. Podonly deployed that specific measure, because syndicate position has proven to be a close reflection of a bank's status in the industry (Podolny, 1993).   
Another form of non-reactive research has been applied by Castellucci & Ertug (Castellucci & Ertug, 2010). In their study on cooperation in Formula One racing, the authors measured the status of organizations by content analysis. This method determines the content of text, including words, meanings, pictures, symbols, ideas, themes, or any communicated message. It perceives books, newspaper or magazine articles, advertisements, speeches, official documents, films or videotapes, musical lyrics, photographs, Web sites, or works of art (Neuman, 2014). Castellucci and Ertug searched the media-database Lexis-Nexis for annual article counts for race teams, counting the numbers of articles in which the name of a team appeared in the text and in which either the heading or the leading paragraph contained the term “Formula One”(Castellucci & Ertug, 2010).   
Together, the non-reactive approaches hold a number of benefits. Content analysis is unobtrusive, the researcher is taking no effect upon the material collected. The method is suited for comparison, such as trends over time. Content analysis combines qualitative and quantitative elements by quantifying data that are normally considered qualitative in nature (Tharenou et al., 2007). Besides, nonreactive research represents several drawbacks. In content analysis, you cannot generalize from the content to its effects, on individuals who read the text (Neuman, 2014). Inferring from newspaper articles may increase the selection bias, as media articles only cover a selected number of events. Also, perspectives and notions in newspapers are commonly unbalanced which in turn may enhance the description bias. Due to their biased selection and description, nonreactive research methods are not useful to eliminate alternative explanations of observed effects (Neuman, 2014).   
  
Applying content analysis to measure status of Universities in Taiwan, the present paper applies a six-step approach, based on Neuman and Tharenou et. al (Neuman, 2014; Tharenou et al., 2007). As in survey research, the content analysis begins with a research question. Content analysis is most appropriate, when questions involves variables that are words, messages or symbols. In the present setting, the research question determines the coverage of Universities in Taiwan in public newspapers. The construct “coverage” includes the amount of words in newspaper articles, the prominence of the article placement, and whether the coverage favors one candidate over another (Neuman, 2014).   
Second, the unit of analysis is defined. To proxy the status of Taiwanese Universities, the unit of analysis is defined as newspaper articles about local Universities. Alternatively, the study may count press reporting’s of Universities colleges, specific programs or affiliated professors. Next, the development of a sampling plan is completed. In the present setting, the population is defined as all words, all sentences, all paragraphs, or all articles in all nation-wide newspaper within the calendar year 2017. After specifying the target population and sampling elements, the sampling frames are constructed, and sample size and the sampling ratios are determined. As the number of newspapers in Taiwan is not large enough to establish sample frames, the present study includes the entire national newspaper population that is listed in media-databases.   
Forth, all variables of interest and construct coding categories are identified. The latent coding system describes exactly how to convert what a coder sees or hears into a few code categories. In the present application, coders are counting the numbers of articles in which the name of a focal University appears in the text and in which either the heading or the leading paragraph contained one or more of the terms academic, arts, education, engineering, medical, management, research, science. Coding system and recording sheets are tested with pilot data. Next, coding and intercoder reliability are verified. Commonly, ten percent of the total sample is selected, each coder use the coding system with the same units but independently of one another.   
Last, data are collected and analyzed. Data are compiled for statistical analysis. The status of Universities is measured by the residuals obtained by regressing press mentions on the total number of students of a University for each year. Based on Castellucci & Ertug (Castellucci & Ertug, 2010) and earlier discussion of drawbacks of content analysis, the results of content analysis require further attention to alternative explanations. To remedy this fact, the regression results were checked for perceptual differences among well-informed respondents. This study randomly selected fifty assistant professors to rate the status of Taiwanese Universities under the principles of survey research discussed on the first section of this paper. The correlation between the surveyed score and the residualized status measure was determined and results discussed.

**Analysis of secondary Data**

Another research approach applied in studies of status research is the analysis of secondary data (Flickinger, Wrage, Tuschke, & Bresser, 2016; Graffin, Bundy, Porac, Wade, & Quinn, 2013; Granados & Knoke, 2013). In a study on how chief executive officers (CEO) protect themselves against dismissal, Flickinger et al. measures the CEO relative status by the number of outside directorships of a firm’s CEO relative to the number of outside board seats of the focal firm’s Chairman of the board. Based on the analysis of longitudinal data of large German corporations, the authors found support for their prediction that a high status of the CEO, relative to the Chairman of the board protects an underperforming CEO against dismissal. In a different view, Graffin et al. (Graffin et al., 2013) studied hazards, associated with high status in the context of an organizational scandal involving the members of the British Parliament. To determine the status of the individual member of parliament, the authors proxy from the seating position within the parliament chamber. While members of the parliament that sit on the front bench represent higher status positions, members sitting in the rear are projected with a lower status.   
Granados and Knoke measured a firm’s status based on its affiliation record (Granados & Knoke, 2013). The status measure used in their analysis derived from the alliances that an organization forms with the other firms participating in the alliance network. While each alliance partner does not contribute equal magnitudes to a focal firm’s status, the status contributed by a partner depends on its focal status, which depends on the statuses of all firms in the partner’s alliance network. In similar notion, Burris (Burris, 2004) applied network analysis to determine the prestige of academic department´s position within network created by the exchange of PhD students between department of different Universities in the United States of America.   
The most notable benefit of secondary data analysis is the low cost to access such data. Large-scale survey collection can be very expensive as well time-consuming to conduct (Neuman, 2014). Besides the low cost of accessing data, this approach is able to take advantage of longitudinal data and perceiving questions which were not considered by the original researchers (Neuman, 2014). Additionally, secondary data analysis allows the replication of a study which in turn gains more credibility (Frankfort-Nachmias & Nachmias, 2002).   
However, the analysis of secondary data holds a number of limitations and drawbacks. Although thousands of studies are available in data achieves, it is difficult to find the dataset that is most appropriate for a given research question (Frankfort-Nachmias & Nachmias, 2002). In order to ensure the strong fit between research question and dataset, researchers have to consider the units of analysis in the data, the time and place of data collection, the sampling methods used, as well as the specific issues or topics covered in the data. A second limitation is that researchers must understand the substantive topic and context of original data collection (Frankfort-Nachmias & Nachmias, 2002; Neuman, 2014). Otherwise, scholars may draw erroneous assumptions or false interpretations about the data and outcomes. Another source of error lies in quoting data and statistics in excessive detail to give an impression of scientific rigor. This can lead to the fallacy of misplaced concreteness, which occurs gives a false impression of precision by quoting statistics in more detail than warranted and “overloading” the details (Neuman, 2014; Tharenou et al., 2007).   
  
Applying secondary data analysis to measure status of Universities in Taiwan, this work follows earlier advances of Granados and Knoke (Granados & Knoke, 2013) by determining the status of a focal University by its affiliation record with international partner Universities. It is assumed that Universities that hold strong capabilities on research and education are able to build affiliations with similar prestigious schools abroad. In turn, the alliance will signal to other observers that the focal University has particular assets that its high-status partner could not obtain by itself or from its other affiliates (Burris, 2004; Granados & Knoke, 2013). Data about University partnerships are collected through the Ministry of Education web portal for 161 public and private Universities in Taiwan (Ministry of Education, 2018).   
As in any alliance system, the University alliance network is symmetric, in the sense that organizations must mutually agree to be partners (Bothner, Smith, & White, 2010). Analyzing the data, a common measure for relational system, the Bonacich eigenvector centrality is applied. This measure is assigning a score to each actor in the system that indicates its status within the network. Each actor’s score is simultaneously a function of the scores of all other members of the network (Burris, 2004; Granados & Knoke, 2013; Scott & Carrington, 2011). To examine whether alliances primarily occur among Universities of the same or different status levels this paper analyzes the matrices containing the annual number of alliances for every pair of Universities. Following Granados & Knoke (Granados & Knoke, 2013), two status groups are defined. The high-status group includes firms with Bonacich eigenvector centrality scores above the 75th percentile of the distribution of status scores for a given year. The low-status group contains all firms with status scores below that cut point.   
As the Ministry of Education is providing information about University-partnerships annually and archiving the data over the last decade, the extent to which the Universities maintained their positions in the status hierarchy over time can be determined. Therefore, the Pearson correlations are calculated between a focal Universities status scores for every pair of years that shall be analyzed. Finding less than perfect correlations of University status measures for different pairs of years indicates that status mobility occurs along the hierarchy, with some Universities changing their positions relative to one another (Granados & Knoke, 2013).

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