HACETTEPE UNIVERSITY

INSTITUTE OF POPULATION STUDIES

COMPARISON OF MAIL AND WEB SURVEY MODES ON FIRMS IN ORGANIZED INDUSTRIAL ZONES (OIZs)

Tevfik BULUT

Department of Social Research Methodology

Master's Thesis

Ankara

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HACETTEPE UNIVERSITY
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TO THE DEPARTMENT OF SOCIAL RESEARH METHODOLOGY

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ACKNOWLEDGEMENTS

ÖZET

Literatürde farklı popülasyonlar üzerinde internet ve posta veri toplama modlarının veri kalitesi göstergeleri açısından karşılaştırılmasına ilişkin çalışmalar olsa da firmalar üzerinde bu iki modun karşılaştırılmasına yönelik çalışmaların çok az olduğu görülmektedir. Diğer taraftan, ulusal yazında internet ve posta veri toplama yaklaşımlarının karşılaştırılmasına yönelik herhangi bir çalışma bulunmamaktadır. Aynı zamanda, organize sanayi bölgesi (OSB) özelinde bu iki veri toplama yönteminin karşılaştırılmasına yönelik uluslararası literatürde herhangi bir çalışmayla karşılaşılmamıştır.

Bu çalışmanın amacı, Türkiyedeki OSB'lerde üretim aşamasında bulunan firmalar üzerinde internet ve posta veri toplama modlarını veri kalitesi göstergeleri ve cevaplılık oranları açısından karşılaştırmaktır. Araştırma iki aşamadan oluşmakta olup, her iki aşamada içerisinde kısmen tekrarlı sorular olan iki farklı anket internet ve posta modunda uygulanmıştır. Araştırmanın 1. aşama anketini cevaplayan firma sayısı 847, ikinci aşama anketini cevaplayan firma sayısı ise 343'tür.

Analizler sonucunda, internet ve posta veri toplama modu cevaplılık oranları bağlamında karşılaştırıldığında internet veri toplama modunun daha yüksek bir cevaplılık oranına sahip olduğu görülmüştür. İlk cevap seçeneğinin seçilme durumu, bütün sorularda olmasa da bazı sorularda internet modunda daha yüksektir. Genel olarak tekrarlanan sorulara verilen cevapların tutarlılığı yüksektir ve veri toplama moduna göre farklılık göstermemektedir. Cevap seçeneklerinin peşi sıra işaretlenme durumu, genel olarak survey moduna göre farklılık göstermemektedir. Posta anketlerinde soru bazında cevapsızlık ise araştırma aşamalarına göre farklılık göstermemektedir. Elde edilen bulgular bütüncül bir yaklaşımla değerlendirildiğinde, Türkiye bağlamında OSB'lerdeki firmalar üzerinde veri kalitesinin veri toplama moduna göre büyük bir farklılık göstermediği gözlenmiştir.

Sonuç olarak, tesadüfi örnekleme yapılarak firmalar belirlendiği için bu çalışmadan hedef nüfusa dair elde edilen bulgular genellenebilir niteliktedir. Veri kalitesinin OSB'ler özelinde karşılaştırılmasından elde edilen sonuçların, hem ulusal hem de uluslararası yazına önemli bir katkı sunması beklenmektedir. Bunun yanında, yapılan çalışma kuruluş araştırması niteliği taşıdığı için ayrı bir öneme sahiptir. Bulgular ve alan çalışması tespitleri, Türkiyedeki OSB'ler için gelecekte yapılacak araştırmalarda internet veri toplama modunun kullanılmasının yararlı olacağını göstermektedir.

Anahtar kelimeler: veri kalitesi, araştırma modu, toplam araştırma hatası, cevaplılık oranı

ABSTRACT

Although there are studies on the comparison of mail and web survey modes on different populations in terms of data quality indicators in the literature, it is seen that there are very few studies on comparing these two modes on firms. On the other hand, there is no study to compare mail and web survey modes in national literature. At the same time, no study has been encountered in the international literature to compare these two data collection methods in the context of organized industrial zone (OIZ).

The purpose of this study is to compare mail and web survey modes in terms of data quality indicators and response rates on the firms in the production stage in OIZs. The research consists of two stages and two different questionnaires, both of which included partly repetitive questions, were applied in internet and mail mode. The number of firms responding to the 1st stage questionnaire of the survey is 847, while the number of firms answering the 2nd stage questionnaire of the survey is 343.

As a result of the analyzes, when web survey mode and mail survey mode are compared in the context of response rates, it is seen that web survey mode had a higher response rate. Primacy effect, although not for all, are higher for some questions in web survey mode. In general, the consistency of the answers to repeated questions is high and does not differ by survey mode. Straightlining does not vary by survey mode in general. On the other hand, item nonresponse in mail questionnaires does not differ according to the survey stages. When the findings were evaluated in a holistic approach, it was observed that survey modes did not show a large difference in terms of data quality on the firms in OIZs in the context of Turkey.

The findings obtained from this study are generalizable because firms are determined by random sampling. The results are expected to make a significant contribution to both national and international literature in terms of comparing data quality in OIZs. In addition, this study has a special importance because it carries characteristics of establishment survey. Findings and fieldwork determinations indicate that use of web survey mode will be useful in future research for OIZs in Turkey.

Key words: data quality, survey mode, total survey error, response rate

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ABBREVIATIONS

AAPOR   American Association for Public Opinion Research

EUROSTAT   European Statistical Office

HUIPS   Hacettepe University Institute of Population Studies

MIT   Republic of Turkey Ministry of Industry and Technology

NACE   European Classification of Economic Activities

OIZ   Organized Industrial Zone

PPS   Probability Proportional to Size

STATCAN   Statistics Canada

TDHS   Turkey Demographic and Health Survey

TSE   Total Survey Error

TURKSTAT   Turkish Statistical Institute

CHAPTER 1

INTRODUCTION

Since the research covers all organized industrial zones (OIZs) in Turkey, first of all, it is believed that it is useful to provide its definition, types of OIZs as well as a brief history on the issue.

OIZs are zones where goods and services are produced by the firms in an organized structure equipped with electricity, water, natural gas, road, telecommunication and other infrastructure facilities based on productivity. The first step of the legislation on OIZs is the Law No:4562 on OIZ that entered into force in the year 2000. Subsequently, the OIZ Implementation Regulation which was prepared to determine the implementation procedures and principles of the OIZ Law, came into force in the year 2002. Republic of Turkey Ministry of Industry and Technology (MIT) is responsible institution for OIZs based on the legal regulations. OIZs are organizations with private legal entity (OIZ Law, 2000), and these zones are divided into three groups according to their types as follows:

a) Mixed OIZs include firms operating in the different sector groups (OIZ Implementation Regulation, 2019).

b) Specialized OIZs consist of firms operating in the same sector groups (OIZ Law, 2000).

c) Reformed OIZs are areas where industrialized buildings exist that were built before July 1, 2017 are located, and are in progress of attaining a "mixed" or "specialized" status (OIZ Implementation Regulation, 2019).

The objectives and targets of the OIZs, whose mission is predominantly the production of goods, are as follows (OIZ Law, 2000; MIT, 2019b).

- Ensuring the activity of the industry in an organized structure
- Contributing to the creation of a sustainable investment environment
- Preventing the distorted industrialization and environmental problems by contributing to the planned development of the city.

- Ensuring efficiency and profit increase in production by contributing to the rational use of resources
- Promoting the industry in underdeveloped regions
- Regulating the use of agricultural areas in industry
- Establishing healthy, cheap, reliable infrastructure, superstructure and joint social facilities
- Preventing environmental pollution with treatment plants
- Ensuring the management of the OIZ by its own bodies under state supervision and control

The first example of OIZs in the world was seen in the UK, based on the importance of positioning and developing industry in an organized structure in the late 19th century. The aim of the first OIZ applications was to allocate industrial parcels to industrialists. In the period that started with the World War II, OIZs started to be used as a state investment. Thus, OIZ policies have been brought into service for the purpose of developing small and medium sized enterprises in underdeveloped countries.

In the planned development period that started in 1960 in Turkey, it was clearly stated that industry is the leading sector. For this purpose, long-term targets such as the realization of economic and social development and growth at a certain pace were determined with emphasis on industrialization. In accordance with these targets, many incentive measures were put into practice in order to improve industry in the country. OIZ applications, one of these incentive measures, were first initiated in 1962 with establishment of an OIZ in Bursa province.

Starting from 1962, the number of OIZs, which are today the production base of the industry as a result of OIZ policies, has risen to 312. The number of employees in these OIZs is 1,869,054, and when production by firms is started in all industrial parcels, the number of employment is expected to be 2,555,830 (MIT, 2019a). As can be seen, OIZs are one of the significant tools for providing both social and economic value added. At this point, measuring the efficiency and productivity of OIZ policies at both the macro level and the micro level is of great importance to increase the social and economic value added. In this context, public agencies often resort to survey

methods to assess efficiency and effectiveness of their work on the subject and target population. However, cost of survey methods have led these organizations to be more selective in collection process of survey data and in the selection of data collection methods. Especially in the last 20 years, widespread internet network, increasing internet access speeds and increasing technological possibilities have led to the data collection techniques being directed towards collecting data via web which is less costly and faster than traditional mail survey (Jansen et al., 2007; Brinkman, 2009; Mcpeake et al., 2014). These opportunities of web are also an advantage over survey modes that use face-to-face and telephone techniques (Couper and Miller, 2008).

The purpose of this study is to analyze the quality of the data obtained by taking the influence of mail and web survey modes in the context of firms that are in the production stage in OIZs. Although there are studies on the comparison of mail and web survey modes in literature, there are no studies on the comparison of these two modes in the national literature. At the same time, there is no study in the international literature that compare these modes in the context of OIZs. The target population of this study is the firms in the production stage in the OIZs. Regardless of the methodological contribution of the study, there is not a comprehensive study that demonstrates the investment barriers faced by firms in production in OIZs that contribute to both real production and employment. Within the scope of the study, one of reasons for the selection of the companies that have in production is to explain the investment barriers encountered before and after the production in comparison. Another reason for the selection of companies in production is to produce data-based policy input for MIT, and contribute to establish a research infrastructure for future research on OIZs.

1.1. Researh Questions

In this study, research questions have been formulated in terms of survey mode or survey stage comparison and certain non-sampling errors; namely, data quality indicators to evaluate measurement error and response rate as a proxy of non-response error. In this context, the main research question is "Do web and mail survey modes have advantages compared to each other in terms of data quality indicators and

response rates?". Data quality indicators include primacy effect, item nonresponse, internal consistency and straightlining. The questions to be examined within the scope of the thesis consist of five research questions as as follows:

1) Does response rate differ by survey mode?
2) Does primacy effect differ by survey mode?
3) Does item nonresponse differ by survey stage?
4) Does internal consistency differ by survey mode switch?
5) Does straightlining differ by survey mode?

CHAPTER 2

OVERVIEW OF RELATED CONCEPTS AND LITERATURE REVIEW

This chapter is seperated into 4 parts. In the first part, survey process components such as questionnaire design, sampling, research objectives, collection of survey data, data processing and data analysis are discussed. In the second part, a brief history of paper and computer based survey modes and the evolution of survey modes according to the technology level are mentioned. In the third part, data quality indicators and how response rates affect data quality are discussed. In the fourth part, web and mail surveys are compared in the context of data quality indicators and response rates.

2.1. Survey Process

Survey is commonly utilized to express the mode of gathering data from sampling units such as persons, institutions or organizations and households. In this sense, surveys use self administered and interview administered ones as data collection modes. A survey can also be seen as a research strategy where quantitative data is gathered from sampling units in a population (de Leeuw et al., 2008). In another definition, the survey is an activity in which information is collected in an organized and methodological way (STATCAN, 2010).

The survey process is a process that continues from the research objectives to the analysis of the gathered data. For this purpose, key to measuring the quality of survey is to understand survey process well. This process contains several successive steps as follows in Figure 2.1.1.

Figure 2.1.1. Survey Process
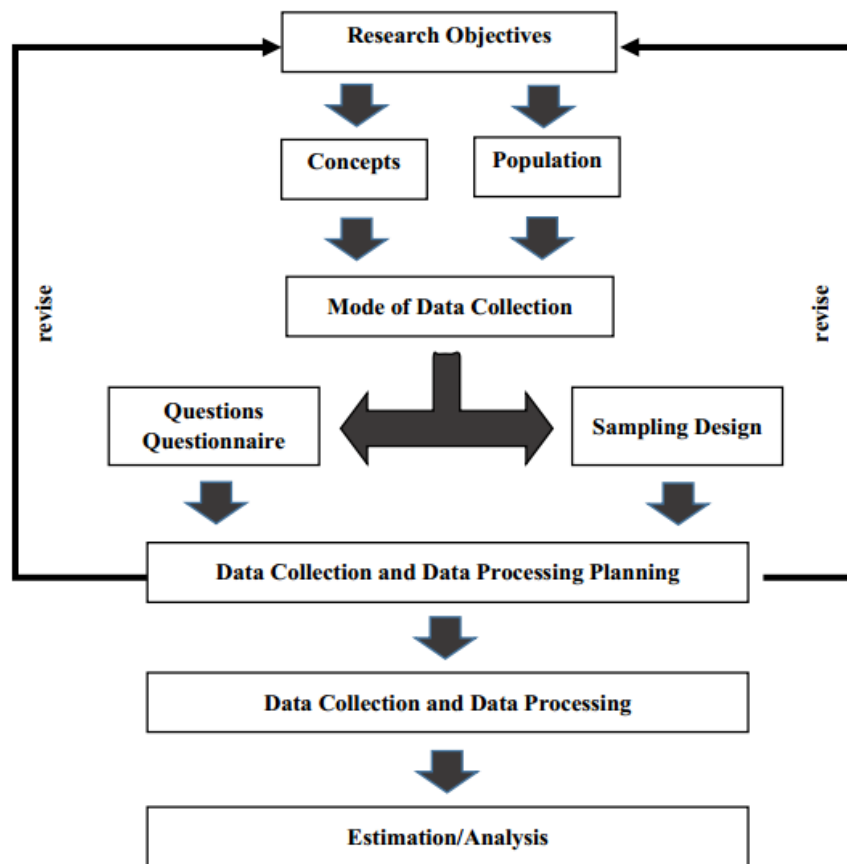
Research Objectives

The initial step of the survey process is to identify the objectives of the survey. The well-established research objectives facilitate decisions to be taken in survey design and further clarify the design framework. This process is also a collaborative, reconciliation and tradeoff process. In a survey that includes survey sponsors and researchers, research questions identified with the cooperation of stakeholders serve to improve the objectives of the study. The question design which is compatible with the objectives of the research also contributes to the reduction of survey errors.

Target Population and Sample

In the survey process, the next step is the determination of the target population. In this context, the association between target population, sampling frame and sample is presented in Figure 2.1.2.

Figure 2.1.2. Relationship Between Target Population and Sample
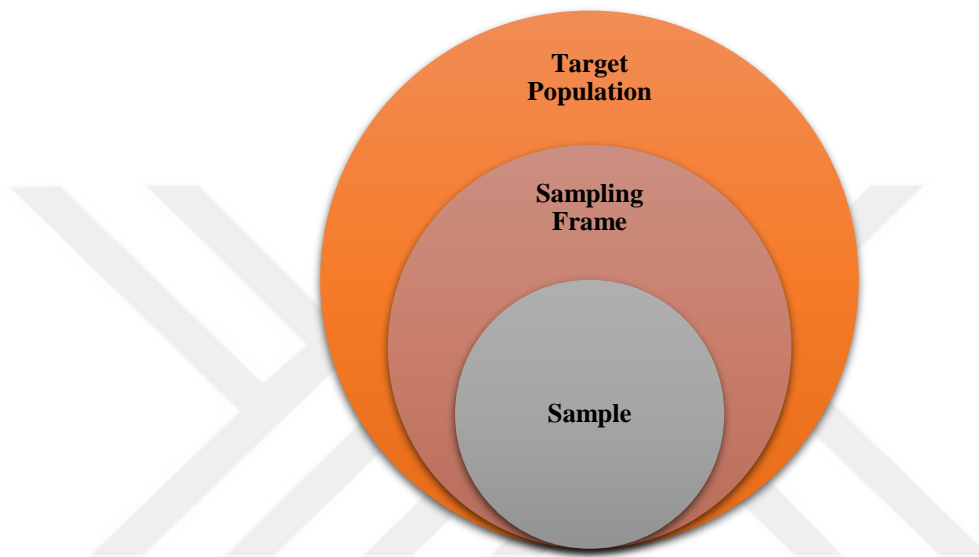
In Figure 2.1.2., the target population consists of the set of units to be studied or covered in the survey (Groves et al., 2004). However, due to constraints of money and time, the target population generally remains larger than the sample (Cochran, 1977).

After definition of target population, the next step is to determine the sampling frame. In this process, after the lists containing the units of the target population are determined, the sampling frame of the sample to be drawn is formed. The sampling frame is the list of elements to be sampled in the target population (Som, 1996). Sample is drawn from a sampling frame within the scope of the study, reflecting the characteristics of the target population and representing the target population. This also means that inferences can be made about the population with the findings obtained from the sample and the findings obtained can be generalized to the population (Greener, 2008). On the other hand, if all units in the population are represented in the sample, it is called as a census.

Mode of Administration

The third step of the survey process includes of data collection modes, questionnaires and sample design topics. The data collection mode varies depending on the content of the questions to be directed, the characteristics of the population, the cost of the data collection mode, the budget possibilities, whether there are interviewers in the mode and the sampling method.

Questions and Questionnaire

The design of the questionnaire to be applied in the survey process holds an important place. At this stage, the questions in the designed questionnaire and the questionnaire should be consistent with the research questions, the variables of the research, the purposes of the research and the survey mode. For this purpose, the steps to be taken into consideration in the questionnaire design can be listed as follows (Norman et al., 2004):

- After deciding on the data collected, conducting focus group interviews if necessary.
- Reviewing subject areas and scales of existing question sets.
- Reviewing existing questions or draft new questions.
- Lining up the questions and set the questionnaire against possible incorrect data entries.
- Making a coding plan for possible answers.
- Pretesting to improve the questionnaire and the questions in it.
- After reviewing the draft of the questionnaire, testing the questionnaire on friends or colleagues.
- After preparing the interviewer instructions, conducting a pilot test.
- Collecting comments from interviewers and respondents.
- Extracting questions that cause uncertainty among respondents.
- Reviewing high response burden and challenging questions.
- Conducting a pilot test again if revisions are large.
- After reviewing the questionnaire, finalizing the interviewer instructions with no problems.

- Keeping an eye on the interviewer training and possible new problems during the first interview.

- Examining interviewer forms and reports after the interviews.

- Benefitting from the knowledge obtained in the design process of the questionnaire in future studies.

Sampling Design

It is inevitable to make sampling more cost effective than census, to obtain data more quickly, to have more coverage and flexibility, to obtain more current and more accurate results (Cochran, 1977). The features required for a good sample design can be summarized as follows (Kish, 1965):

- The sample design should be consistent with the objectives of the research, research questions, sample procedures and measurements.

- The results obtained from the sample should be measurable. Therefore, probability samples containing a randomized selection that allows statistical inference should be used.

- The sample design should be practical. This requires simple, complete, clear design. A practical design requires the possibility to predict and tolerate potential problems.

- Design also requires the achievement of the maximum survey objective with minimum cost and effort. For this purpose, total survey error (TSE) consisting of variance and bias should be minimized. Therefore, tradeoff between TSE and research purposes is required.

The sample design consists of four components including sample size, sampling frame, sampling process and sampling techniques.

After the sampling frame is obtained, the next step is to determine the techniques to be used in sample selection. In this process, probability sampling techniques are widely used in the sample selection. Probability sampling is important for objective statistical inference about the population. In this sampling type, it is known that each unit of the population has non-zero probability of being selected in

the sample. In this respect, probabilistic sampling methods are discussed in five groups and shown in Figure 2.1.3.

Figure 2.1.3. Probability Sampling Methods

Simple	Complex
Epsem	Unequal probabilities
Element Sampling	Cluster Sampling
Unstratified Selection	Stratified Sampling
Random Selection	Systematic Selection
One-Phase Sampling	Double Sampling
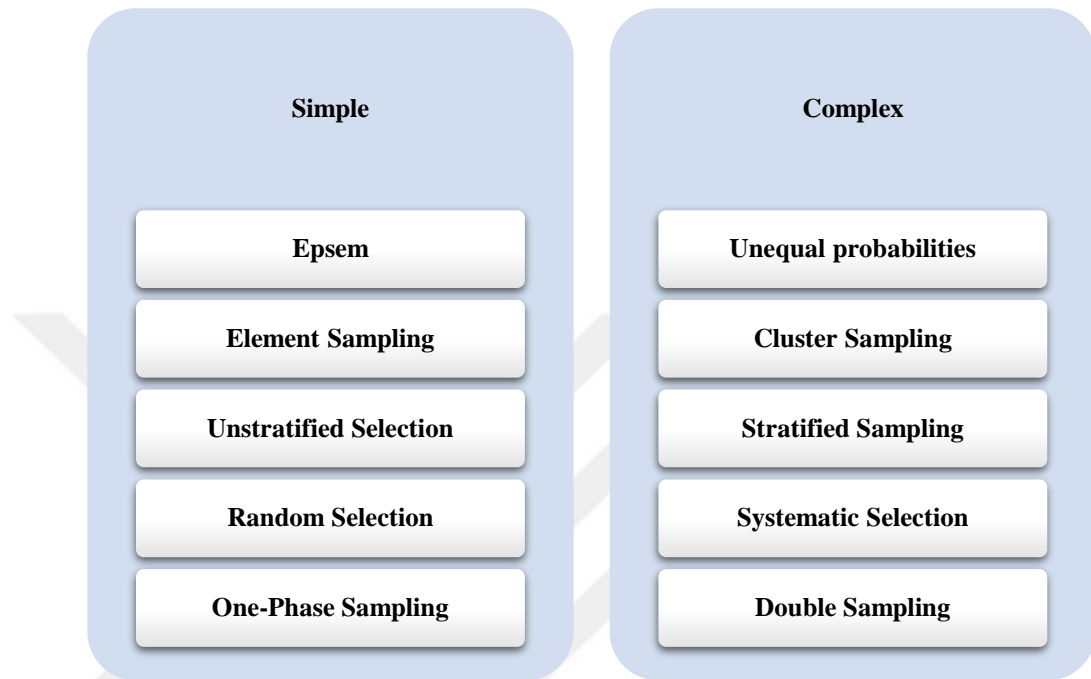
Source: Kish, 1965

Equal probability of selection method (Epsem), a special type of simpe random sampling (SRS), refers to the sample where each unit of the population has the same probability of equal selection. Unlike Epsem, unequal probabilities have disproportionate allocation for optimal allocation and irregularities in selection procedures.

In the element sampling, the sampling unit contains only one element. In its contrast, in cluster sampling, there are elementary clusters or groups as sampling units This method has four types in itself, respectively.

- One-stage
- Multistage
- Equal cluster
- Unequal clusters

In the unstratified selection, sampling units from the whole population are selected. In stratified sampling, on the other hand, the population is separated into strata having similar characteristics, and selections are made seperately from each stratum.

In the random selection, the sampling units with the elements from the population or stratum are randomly selected. On the other hand, in the systematic selection, which is an alternative to the random selection, each sampling unit is selected according to the selection interval (k^{th}).

In the one-phase sampling, the sample is drawn directly from the population. On the other hand, two-phase or double sampling consists of multiple sampling selection processes. In other words, subselection is performed after selection of a large sample.

Determining the sample size, which constitutes the final step of the sampling design, depends on different parameters such as cost, desired precision, data collection mode. Large samples including an exhaustive selection process increase the reliability but may decrease accuracy. In this case, the collection of data is longer and more costly in general. On the other hand, small sample sizes can lead to unreliable results. Thus, sample size of a survey should be determined taking into account purposes of the survey and available resources. At the same time, it should be aimed to minimize TSE (Kelley et al., 2003). As a result, a trade-off should be established by taking into consideration the issues mentioned.

Data Collection and Data Processing Planning

Collection of survey data and data processing is a process in which data collection activities are made simultaneously during the preparation of research design. This process, which includes pre-and post-research preparations, consists of the following key actions (ICF International, 2012).

- Preparation of data collection guidelines and data flow charts
- Preparation of necessary equipment, such as computer and GPS units
- Determination of the languages to be used for questionnaires

- Training of the interviewer and the persons responsible for data collection and processing

Data Collection and Data Processing

The stage after planning collection and processing survey data is the process of collecting and processing data. At this stage, the decisions planned in the previous stage find the application area at this stage. Although the procedures performed at this stage vary according to the data collection mode and the research design, it consists of the following steps in general (Biemer and Lyberg, 2003);

- Monitoring the implementation process of data collection plan.
- Getting feedback from the supervisiory staff and take the necessary steps.
- In interview administered modes, recruiting interviewers, training them and sending them to the data collection area.
- Testing whether mail and web questionnaires are sent or not.
- Performing follow up procedures for those who do not reach mail and web questionnaires.
- Being followed the process of collecting data and intervened in the process if unforeseen problems occur by the project team as a whole.
- Checking whether the procedures are performed in accordance with the prescribed schedule and planned procedures.
- Performing quality control procedures to get better the data quality and to ensure the functioning of the data as planned.

Data Analysis

After data collection and data processing, the analysis of survey data is started. At this stage, the data collected is weighted to compensate for missing data, frame problems and unequal selection possibilities.

The researcher may want to explain the subject in terms of variables from the study. After analyzing a single variable meaning univariate analysis, the results can be presented. However, the analysis of a single variable may often not be sufficient, and the researcher can be interested in the association between a variable and other

variables. The examination of the relationship between the variables may include both aspects of the analysis. The researcher may want to see to what extent the experiment and control groups differ. In this case, the researcher may need to deal with relationships between more than two variables, also called multivariate analysis (Bryman and Cramer, 2011).

2.2. Concise History of Survey Modes

In the modern sense, the survey extends to the old census (Sudman and Bradburn, 1987). Social research surveys started with social reform movements in the United States and Great Britain. Among the first data collection methods, mail and face to face survey modes are the most widely used data collection modes. Mail surveys are one of the oldest systematic survey methods. The first known postal survey was conducted by King Philip II of Spain in 1577 (Dillman and Parsons, 2008). Among the typical survey modes, face-to-face mode is among the most frequently encountered methods that come to mind first and in practice (Dijkstra, 1987). However, telephone survey modes are one of the most frequently used methods for collecting survey data especially in the late 1960s. There are several reasons for this; the rise in the number of households with a higher number of people, the cost of personal visits and the low rates of response in face to face surveys have made the use of telephone surveys more popular. Initial survey mode comparisons were made between face-to-face, phone and mail survey modes. Most of the literature on mode effects comes from face to face and phone surveys in the 1970s (Tucker and Lepkowski, 2007).

In the last 25 years, the number of new data collection modes for survey data has increased considerably. At the same time, the increase in the number of methods led to the simultaneous use of mixed survey modes and the use of different survey modes in different waves of research (Groves et al., 2009). In these periods, many factors have been effective in the emergence of such a trend. The first of these is the emergence of new survey modes including web and interactive voice response (IVR), in addition to traditional telephone, mail and face-to-face survey modes. Second, the increase in mobile phone usage in parallel with the reduction in coverage of random digit dialing (RDD) surveys and the decrease in response rates in telephone surveys cause researchers to consider alternative survey modes to reduce nonresponse error.

The third of these factors is that higher response rates are achieved in mixed survey modes (Dillman et al., 2009).

In the early 21st century, survey modes in the social survey movement, an action-oriented community program in Great Britain, Canada and the United States, underwent a major change (Neuman, 2004). During this period, the Internet has had a profound impact on survey research. Web surveys have diversified the collection methods of survey data as well as replacing traditional survey modes. Web surveys seem to be increasingly preferred by many individuals and institutions in recent years in comparison to other survey modes in terms of low cost, rapid collection, processing and analysis of answers, and access to large populations (Couper, 2000).

With the introduction of technology into more and more of daily life and becoming a part of daily life, paper based modes have been replaced by computer based survey modes in recent years. The most common data collection modes currently in use according to the level of technology use are briefly classified in Figure 2.2.1.

Figure 2.2.1. Brief Classification of Survey Modes by Technology Use Levels
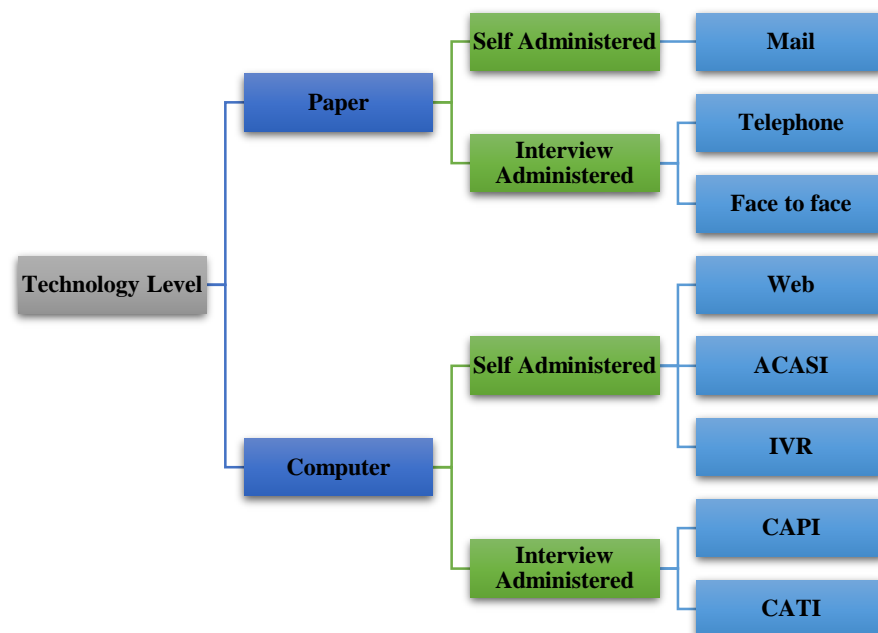
Source: Groves et al., 2009

As can be seen in Figure 2.2.1, data collection modes are divided into two groups as self administered and interview administered. In general, this statement indicates whether the interviewer is in data collection mode. If the interviewer is

included in the survey mode, it is called interview administered. If the interviewer is not included in the survey mode, it is defined as self administered.

Interview Administered Modes

In face-to-face interviewing, interviewer comes into direct contact with the respondent. Interviewer read questions on the prepared questionnaire to respondent. The responses obtained respondent are recorded on the paper questionnaire by interviewer.

In telephone interviewing, interviews are conducted on the phone. The interviewer asks questions on the prepared questionnaire to respondent on the phone. Similar to face-to-face, responses are recorded on the paper questionnaire by interviewer.

In computer-assisted personal interviewing (CAPI), one of the computer-assisted interview administered modes, the interviewer reads questions on the computer screen to the respondent, and then interviewer enters responses from the respondent directly into computer.

In the computer-assisted telephone interviewing (CATI), which means that CAPI is being implemented on the phone, the interviewer asks questions on the phone and records the responses obtained to the computer.

In audio computer-assisted self-interviewing (ACASI), the respondent reads the questions which is displayed on the computer screen, and then enters the responses into the computer, and then saves them.

In an interactive voice response (IVR) or telephone audio computer-assisted self-interviewing (T-ACASI), the respondent answers the questions asked on the telephone using the telephone keypad or the voice response system.

Self Administered Modes

The first of the data collection modes in this group is the mail surveys, which are quite old. In the mail surveys, the prepared questionnaire is mailed to the postal address of the respondent. In this survey mode, where the interviewer is absent, the respondent answers the questionnaire, and then submits it to the researcher.

One of the innovations brought about by technological change and development is the fact that survey data collection is now carried out via an online network. In web mode, the link of the web survey prepared on a computer with internet access is sent to a registered e-mail address of the respondent. The respondent is then expected to answer a web survey on his own.

2.3. Theoretical Framework and Selected Indicators

This thesis examines survey errors from the perspective of total survey error. In this context, the focus will be on nonresponse error and measurement error, under the general heading of non-sampling error. This section will explain survey errors in general in order to explain where these two types of errors fall. Thus, here, the concepts of survey error, response rate, primacy effect, item nonresponse, internal consistency, straightlining are given.

2.3.1. Survey Errors

When a survey is performed, it is aimed to keep the variance and bias at the lowest level. For this purpose, as can be seen in Figure 2.3.1.1, bull's eye is displayed on the target. On this figure, Bull's eye represents the population parameter to be estimated by survey data. The main purpose of the survey is to estimate the population paratmeter correctly on bull's eye in Figure 2.3.1.1. The illustration on the left in the Figure shows the case of large variance and small bias. The figure on the right in the Figure means small variance and large bias. In surveys, both variance and bias should be minimized. In other words, it means that observations should be in the bull's eye. This also means high precision and high accuracy. However, this may not always be possible. For this reason, trade-off should set up between variance and bias.

Figure 2.3.1.1. Systematic and Variable Error Estimation (Bull's eye illustration)
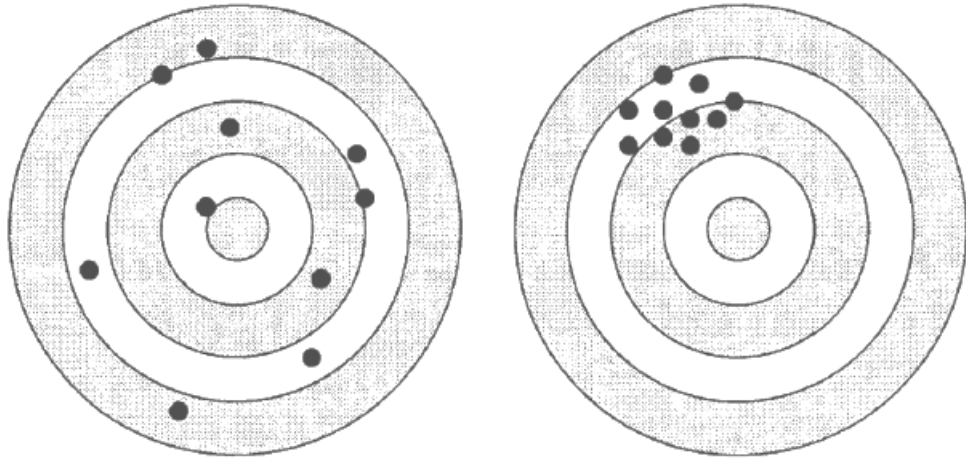
Source: Biemer and Lyberg, 2003

(a) Large variance and small bias   (b) Large bias and small variance

The main purpose of the survey is to minimize the total survey error (TSE) under budget and time constraints. TSE can be defined as the difference between the correct value of the population parameter and the estimate. TSE consists of sampling error and non-sampling error. Components of TSE are shown in Figure 2.3.1.2.

Figure 2.3.1.2. Total Survey Error (TSE)
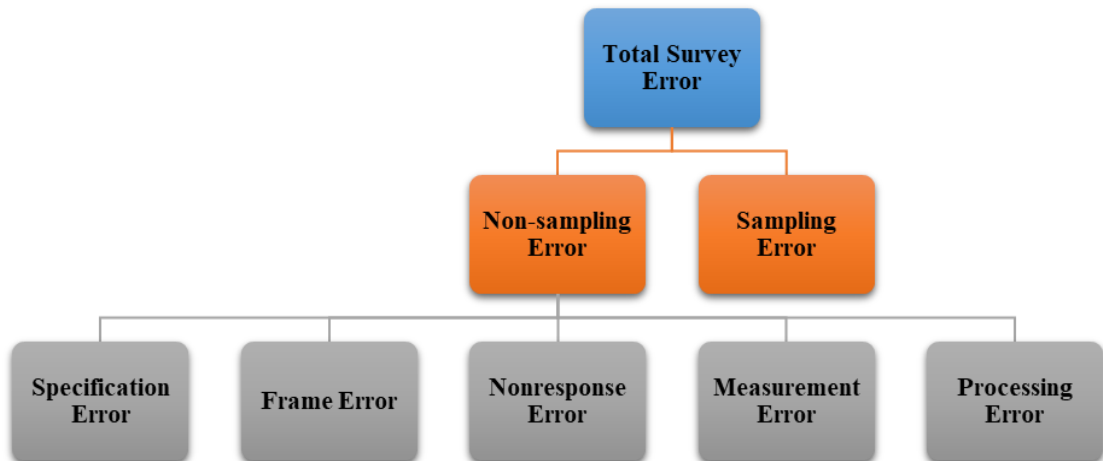
As shown in Figure 2.3.1.2., the nonsampling error consists of 5 main error sources. The causes of these 5 error sources can be discussed as follows:

- Concepts, objectives, and data elements constitute the causes of specification error.

- Duplications, omissions, and erroneous inclusions cause frame error.
- Incomplete information, whole unit, within unit, and item nonresponse cause nonresponse error.
- Setting, information system, instrument, mode of data collection, interview, and respondent, constitute error sources in measurement error.
- Coding, tabulation, editing, weigthing, and data entry cause processing error.

Unlike nonsampling error, sampling error can be described as the random variation in the sample estimates around the correct population value (Kothari, 2004). These errors occur during sample selection rather than the entire population. The sampling error decreases as the sample size rises. In other words, there is an inverse relationship between sample size and sample error.

Within the scope of the study, data quality indicators have been evaluated in the context of non-sampling error. Primacy effect, internal consistency and straightlining are examined under the above mentioned measurement error. On the other hand, item nonresponse is discussed under nonresponse error.

Nonresponse error refers a function the difference between respondent and nonrespondent means, and the nonresponse rate, on the variables of interest. However, nonresponse error has not been calculated in this study. The reason for this is that response rate taken as an indicator does not explain the nonresponse bias alone. At the same time, auxiliary variables are needed in nonresponse bias. On the other hand, there is not necessarily an association between nonresponse rates and nonresponse bias. In addition, response rates do not contribute to the proxy measurement of nonresponse bias in terms of validity and reliability (Groves, 2006).

2.3.2. Response Rate

The conduct of a survey and revealing survey results significantly depends on the willingness of the respondent to answer the questionnaires. However, unless the questionnaires reach the target population or even if the target population have reached the questionnaires, but the participation in the research is not possible due to different reasons, it is far from reality to obtain a 100% response rate (Baruch and Holtom,

2008). Response rate alone is significant indicator of the potential contribution of a study, although it is seen not an sign of the quality of a study (Campion, 1993). For this reason, it is significant to obtain high response rates for the assessment of survey quality indicators (Groves, 2006).

Although there are various forms of nonresponse, there are generally two types of forms, and these two forms have different effects on the data quality. The first of these forms is the unit response, which means the first level of nonresponse. Unit nonresponse is the lack of data for the appropriate analysis unit for statistical analysis. This situation occurs when there is no communication with the answer unit and the cooperation is rejected. At the same time, this can also occur in cases where data editing or analysis of the questionnaire is made incorrectly, even if the response unit cooperates (de Leeuw, 2001). In survey research, unit nonresponse is often seen as a greater threat than item nonresponse, and covers a larger area quantitatively than the item nonresponse (Yan and Curtin, 2010).

2.3.3. Primacy Effect

This bias, which appears in the selection of the first answer option in a set of answers in surveys and multiple-choice knowledge tests, is called the primacy effect, which is one of the types of response order effects or serial position effects (Erkel and Thijssen, 2016). In some studies in literature, primacy effect has been tested by using unipolar and bipolar response scales including likert type scales (Chan, 1991; Dennis et al., 2005; Malhotra, 2008; Rada and Dominquez-Alvarez, 2014).

When respondents are presented a list of sorted items, they may tend to choose the first answer option. In the background of this situation, it can be said that respondents show less effort to reduce response burden. In other words, instead of reading all the response options in an item, respondent selects the first answer option and brings the easier, and less cognitive load to respondent (Krosnick and Alwin, 1987). In this context, it can be said that there is a relationship between faster completion times and primacy effect in general (Malhotra, 2008).

2.3.4. Item Nonresponse

In an ideal survey research, all respondents respond all questions and there is no nonresponse. However, the actual survey environment is far from the ideal and nonresponse occurs.

Item nonresponse is also defined as the inability to obtain information in connection with question in an interview or a questionnaire in the survey (de Leeuw, 2001). This type of error occurs in 3 different ways. The first is that the respondent accidentally ignores a specific question, the answer to the question is not known, and the respondent refuses to answer that question. The second is that the answer option that the responder seeks in the relevant question is not among the options. The third is the loss of information that occurs during the input, coding and editing of data in the relevant question. The first two of these reasons are the reasons for the nonresponse of the item encountered in the data collection process (de Leeuw et al., 2003). Item nonresponse may result in nonignorable missing data (Yan and Curtin, 2010).

2.3.5. Internal Consistency

Internal consistency is defined as a measure of reliability, which means that responses to questions are consistent or repeatable. To calculate internal consistency, Cronbach's alpha coefficient is commonly used. The value of this coefficient generally ranges from 0 to 1, and the higher Cronbach's alpha coefficient means the higher the internal consistency (Perkins and Sanson-Fisher, 1999; Helms et al., 2006). However, internal consistency coefficient can sometimes take negative values. The reason for this is due to the negative correlation of the questions in the scale with the others (Streiner, 2003).

2.3.6. Straightlining

Straightlining, which is one of the other indicators that reduces the quality of the response, means that the survey respondent responds to subsequent questions using the same response scale (Kim et al., 2018). In the other definition, straightlining is defined as the selection of the same response scales in the form of a straight line on the same column in the questions prepared in grid format (Schonlau and Toepoel, 2015).

Despite the potential importance of straightlining, there is no single approach to assess this. In addition, although mixed mode studies have increased, there are few studies to compare straightlining between mail and web surveys (Kim et al., 2018).

2.4. Literature Review on Comparison of Mail and Web Surveys in Terms of Data Quality Indicators and Response Rate

In the literature, it has been seen that web and mail survey modes show differences in response rates and data quality from comparative results, according to characteristics of target population, research design and budget possibilities.

In a study by Lin and Ryzin (2012) have conducted on non-profit working professionals in human resources and community improvement organizations in New Jersey, data quality and response rates have been compared in terms of mail and web survey. According to results obtained, mail survey has higher response rates than web survey. The result is statistically significant. Very similar results have been obtained in terms of item nonresponse, which is one of the important indicators of data quality. Internal consistency is higher in mail surveys according to Cronbach's alpha values. Another issue addressed in this study is the evaluation of comparative modes in terms of cost and data collection time. Looking at the costs, mail survey mode is much more costly as in previous studies. Similarly, in the context of time, mail surveys are more time consuming in terms of sending questionnaires, printing, returning questionnaires, and data processing time. In another similar study conducted by Kwak and Radler (2002) on students in a university in the USA, a higher response rate has been obtained in mail surveys compared to web mode. Mail survey involves higher female respondents and younger respondents (23.42 years versus 24.46 years). However, in this study, web survey has lower item nonresponse and shorter response time. In a survey of individuals aged 70-75 in Denmark on the design of nursing homes, Bech and Kristensen (2009) found that respondent characteristics such as age, income, education in the web surveys showed significant differences compared to the mail survey. According to the findings obtained from this study, response rates in mail survey are higher than web survey. Another finding from this study is that individuals choose mail surveys as they move from 70 to 75 years of age. So, as age increases, there is a choice in favor of mail surveys in the selection of survey mode. On the other

hand, it has been determined that web survey respondents have a higher income and education level. Another finding in this study is that web mode is more advantageous than mail mode in terms of item nonresponse error. In a study conducted by Rada and Dominquez-Alvarez (2014), the survey data have been collected and analyzed by the Institute of Advanced Social Studies to understand situation of Andalusian citizens living outside the country. In this study, it has been determined that in mail survey the response rate is higher compared to web surveys. In the same study, it has been found that the rate of survey participation is low in young people and high in old people without mode separation. According to this study, the group that uses mail surveys most frequently is the one who is over 65 years old and have lower education level. The primacy effect, which means the choice of the first response, has been found higher in web mode. Unlike some studies in the literature, the non-response rate has increased with mandatory questions.

However, the results obtained from the comparison of mail and web surveys also show favorable results for web survey. Greenlaw and Brown-Welty (2009) have worked with the American Evaluation Association (AEA) on individuals with registered emails and mailing addresses with high education levels to collect information on employment status and compensation. According to the employment survey conducted, a higher rate has been obtained in web surveys in terms of the response rates and this difference is statistically significant. In this study, there was no statistically significant difference in response rates according to education level and sex. Similarly, Kaplowitz et al. (2004) found that web mode is relatively advantageous in terms of response rates compared to mail mode, in a study of students with high internet access and registered email addresses at Michigan University. In a study that was jointly carried out on employees by Saunders (2012), and U.K. which is the public sector organization that is responsible for school transport, care, travel, libraries, schooling, employees' attitudes towards this organization were aimed to be understood by mail and web survey. This study was part of a triennial employee survey which is an ongoing survey. According to the findings obtained at the end of the study, web mode had both higher response rates and faster data return rates than mail mode.

A study conducted on 7200 young adults in the context of alcohol beliefs and consumption by Kim et al. (2018) shows that straightlining occurs higher in mail survey mode compared to web survey mode. However, these findings are not statistically significant.

In the literature, it was found that there were differences in the response rates between the 1st and 2nd stages of the surveys using mail and survey modes and generally there were decreases in the response rates in the 2 stages of the surveys. The response rate predicted in stage 1 of the survey is 60% for mail and 40% for internet. In the study conducted by Sadıkoğlu and Olcay (2014) in Kocaeli Gebze OIZ, the total response rate was found to be 48.4%. In a meta-analysis study of Baruch and Holtom (2008), average response rate is 50.3% in the manufacturing industry sector in the 48 surveys conducted according to the industrial sector.

In the same study, the average response rate is found to be 38.9% for web surveys in 6 studies. In a household survey conducted by Edwards et al. (2014) in the USA in 2012, mail survey was found to provide higher response rates compared to web survey. The results obtained are statistically significant and the response rate is 50.5% in postal survey and 41.8% in web survey. In the studies conducted in the literature, it is seen that giving information to the respondents both with public support and pre-survey invitation letters increased the response rates by 1.4 times (Bartholomew ve Smith, 2006). Similarly, in Kanuk and Berenson's (1975) meta-analysis study, the effect of the institutions including public, university or commercial firm that conducting the research in postal surveys on the response rates was examined. Accordingly, the highest response rates were found to be in the public option.

2.5. Hypotheses

In this study, hypotheses have been formed in terms of data quality indicators and response rate by mode. Hypotheses are based on research questions and literature. Survey mode differences are generally not expected except for response rates. Because the questionnaires are sent by an official institution, and as the issue addressed in the questionnaires are specific to investment barriers, it is directly related to the firms. In addition, respondents who will participate in the research were chosen from among the people who know the status of the selected firms and who are capable of representing

them. Beside these, in order to reduce possible refusals from participants in both modes, mostly questions with low response burden were included in the questionnaires in accordance with the literature (Willimack and Nichols, 2010). The hypotheses to be examined within the scope of the research consist of five hypotheses. These hypotheses are as follows:

Hypothesis 1: A higher response rate is expected in mail survey mode than in web survey mode. Although there are differences in comparison of response rates according to survey mode in literature, it is seen that the response rates obtained from mail survey mode in general are higher than web survey mode (Manfreda et al., 2008; Baruch and Holtom, 2008; Hoonakker and Carayon, 2009; Shin et al., 2012). On the other hand, there are few studies showing that web survey mode is more advantageous in terms of response rates (Greenlaw and Brown-Welty, 2009; Saunders, 2012).

Hypothesis 2: It is expected that primacy effect will not differ between survey modes. There are very few studies in the literature regarding the comparison of mail and web survey modes in terms of primacy effect. In a study conducted by Rada and Dominquez-Alvarez (2014), primacy effect was found higher in web mode.

Hypothesis 3: It is expected that item nonresponse will not differ by survey stage. Item nonresponse will be analysed by survey stage in mail survey mode. The reason for this is that all questions are mandatory due to the design of the web survey mode. It is known that unit nonresponse generally show a decreasing trend between response waves (Kanuk and Berenson, 1975; Ladik et al., 2007). However, there are few studies demonstrating the differences between response waves in terms of item nonresponse. In a study, a negative relationship was found between unit nonresponse and item nonresponse depending on time. According to this study, item nonresponse decreases due to increase in unit nonresponse (Yan and Curtin, 2010). However, firms are expected to take the research seriously as mail questionnaires are sent to firms by MIT. Therefore, a higher item nonresponse is not expected in the 2nd stage of the survey.

Hypothesis 4: It is expected that internal consistency will not differ by survey mode switch. Although there are few studies conducted to compare the internal consistency of mail and web surveys in the literature, there are not definite results

about the internal consistency. In a study by Lin and Ryzin (2012), internal consistency is higher in mail surveys. On the other hand, in an another study by Liao and Hsieh (2017), the findings show that web and mail survey modes have the similar results in terms of internal consistency.

Hypothesis 5: It is expected that straightlining will not show difference by survey mode. There are few studies in the literature regarding the comparison of mail and web survey mode in terms of straighlining. In a study conducted on 7200 young adults in the context of alcohol beliefs and consumption by Kim et al. (2018), straightlining was found higher in mail survey mode compared to web survey mode. However, these findings are not statistically significant.

The primary concern for primacy effect, straightlining and internal consistency, which are of the data quality indicators, is to determine whether there is any difference between survey modes. Therefore, no stage-based analysis has been performed for these data quality indicators except for item nonresponse.

CHAPTER 3

METHODOLOGY

This chapter is divided into three parts. In the first part, the survey design including target population, sample design, sample selection, questionnaire design, pretest, pilot test, fieldwork, data collection, and data processing activities are discussed. In the second part, response rate and data quality indicators such as primacy effect, item nonresponse, internal consistency and straighlining, and methods of statistical analysis are included under the title of calculation of data quality indicators and response rate. In the third part, data quality and response rate variables for analysis are explained.

The research, which is designed as a two-stage longitudinal survey, is based on the positivist social science approach, and the methodology of the research is quantitative.

3.1. Survey Design

In this section, respectively, sample frame, and stratification, sample allocation and sample selection, questionnaire design, pre-test, pilot test, fieldwork, data processing and analysis are covered.

3.1.1. Sampling Frame

The firms that had in the production stage in all OIZs are covered in the scope of the research. However, postal and e-mail addresses of the firms were not available in MIT. Therefore, there was a need to create frame. For this reason, first of all, an official letter by MIT has been sent to 311 OIZs which are active and not active in Turkey on January 30, 2018 (MIT, 2018). In the official letter of the submission, the following data were requested from the companies that are in the production stage in OIZs until February 2, 2018 in the form attached to the official letter. The data requested in this form includes the following items.

- Name of the OIZ where the company operates

- Registration number of the OIZ

- Name of firm in OIZ

- Tax identification (Tax ID) number of the firm in OIZ

- Postal address of firm in OIZ

- Main field of activity of firm according to the NACE Code

- NACE code in OIZ

- Business phone of firm in OIZ

- Current e-mail address of the firm in OIZ

- Person responsible for the firm's corporate communications in your OIZ;
    1. Name
    2. Surname
    3. Position in the company
    4. Business phone number
    5. Cell phone number
    6. Current e-mail address

However, since the list could not be completed until the deadline given, e-mails were sent to the OIZ regional managers many times in order to get the firm information above from firms that did not provide a return on the following dates. The regional managers of the remaining OIZs who could not return the lists required were called by telephone. Finally, the list was completed on March 3, 2018 by sending information of firms which is in the production stage within Ikitelli OIZ. At this date, the number of OIZs with firms in the production stage was 232. The remaining OIZs were still inactive ones.

After March 9, 2018, data cleaning and formatting of the company records obtained as a basis for sample frame and sample selection were started by using Microsoft Office Excel 2016. Finally, the firms are summarized in Table 3.1.1.1 by making a distinction with and without the e-mail address on March 23, 2018 and April 6, 2018.

Table 3.1.1.1. Postal Address Status of Firms by OIZ Type

	Reformed	**Specialized**	**Mixed**	**Total**
Available	253	1,757	46,014	48,024
Not available	43	4	1,762	1,809

The lists of firms in OIZs were obtained by official letter from the administrations of related OIZs. In the list summarized in Table 3.1.1.1:

- In more than one parcel within an OIZ, there are firms under the same name operating under the same NACE activity code name. In here, NACE activity code refers code used in the European standard classification of productive economic activities. In this case, the company records were reduced to 1 by removing by Microsoft Office Excel. These records were removed according to excel rows with the selected record.

- Because the names of 29 companies in 6 mixed type OIZs were missing, these companies were removed from the records.

- A firm operating in an OIZ can operate within different OIZs. Some of these firms can operate under different NACE activity code. Although some firms have a sector code, most of them do not. Some of the NACE code is not suitable for its format, and therefore does not serve its purpose. Another issue is that although a firm operates in different sectors, the tax identification number is unique. At this point, providing unique firms that produce in different fields of activity serves to reduce transitiveness and interaction. Similarly, there are firms with the same e-mail addresses in such firms. If the web survey is sent to them in such a case, the confusion may occur especially because e-mail addresses of firms are the same. Such duplicate records in Microsoft Office Excel were removed according to excel rows with the selected record in the columns under the relevant topic. With this operation, other records in other rows are deleted except for the record in the first row of the same records using the remove duplicate records tab in excel.

- Some firms did not want to give their tax ID number. The number of firms that did not report a tax ID number in total is 21,369. All of the firms in

Ikitelli OIZ, which is a mixed type, did not report a Tax ID and a NACE code related to their main field of activity. The number of firms in this OIZ is 18,894. In OIZs other than Ikitelli OIZ, 2,377 of the firms did not report a tax ID number.

- In the lists, it was seen that some companies with no information of postal addresses sometimes entered e-mail address and name of OIZ where they are active, into the postal adress section. In addition, there are some other text and numeric characters that do not reveal postal for some firms. Thus, some firms had data in the postal address field, but they were not valid and could not be used. Considering the firms that have data in these properties, the number of firms with no postal address is 1,809. Instead, the addresses of OIZs in MIT in which these firms operate was used for sending out questionnaires and to get in contact.

- Using Tax ID number for real persons in the Republic of Turkey citizenship in all operations of the firm has been imposed effective from 1/1/2007. This number is only 11-digit identification number and the Republic of Turkey (Tax Identification Number General Communique No:3, 2006). The tax identification number for legal entities is determined as 10 digits. These numbers are unique. However, there are records which do not comply with the tax identification number format during the list creation phase. Such records could not be cleaned because the number of digits in these numbers was less than 10 digits or were sent in a format that was not in accordance with the format of the tax ID numbers in some firms in list.

- Although name of firm is unique, firm has a tax identification number and can perform production activities in more than one sector and OIZ under the same name.

14 firms who interrupted the production after the operations mentioned above, and 29 firms from 6 OIZs which have no company name, were removed from the list. After this operation, in the remaining 49,788 firm records, duplicate records were removed according to tax ID number after duplicate records were removed by company name. In the listing process, the records in Microsoft Office Excel were

removed according to excel rows with the selected record in the column under the relevant topic in the list. With this operation, other records in other rows are deleted except for the record in the first row of the same records using the remove duplicate records tab in excel. When duplicate records are removed by the firm name, 44,771 records remain after 5,373 duplicate ones. After this process, when 790 duplicate records according to tax ID number are removed from 43,625 firm, there are 43,625 firm records remaining. The number of firms remaining after removal of duplicate records by firm name and tax identification number is shown in Table 3.1.1.2.

Table 3.1.1.2. Number of Firms Remaining After Removal of Duplicate Records

	Reformed	**Specialized**	**Mixed**	**Total**
OIZ	7	20	202	229
Firms	280	1,416	41,929	43,625

Depended on the data in Table 3.1.1.2, the situation where the e-mail address of at least one of the employees of the firm or firm by the type of OIZ is shown in Table 3.1.1.3.

Table 3.1.1.3. Number of Firms with E-mail Addresses

OIZ Type	**E-mail**	**OIZ**	**Firm**
Reformed	Yes	7	251
	No	2	29
Specialized	Yes	20	1,193
	No	6	223
Mixed	Yes	196	25,281
	No	106	16,648

In Table 3.1.1.3, there are 223 OIZs with e-mail, 7 of which are reformed ones, 20 of them are specialized ones and 196 of them are mixed ones. There are 26,725 firms' e-mail addresses in these OIZs. The final list, which was the basis for the sample frame, was created in such a way that the same firms would be represented only once and the firms with no e-mail addresses were excluded. More clearly, firms with no e-mail address were not represented in the population, and firms under the same name were represented only once in the population. Here, the reason why firms with no e-mail addresses were excluded was that if firms with no e-mail addresses had different

characteristics, this might create bias in survey mode comparison. In other words, it was aimed to prevent bias in comparison of mail and web survey modes.

3.1.2. Sample Selection

Mixed, specialized and reformed OIZs are research universe in this study, and the firms that have gone through production stage in these OIZs constitute the target population. The types of OIZ were determined as strata because they differ in their properties.

In this study, response rates were taken into consideration in sample design and sample allocation. In accordance with the literature, the response rates were assumed to be higher in mail surveys than web surveys. However, the response rates anticipated to be from the postal survey in the 1st stage of the survey were determined to be higher than the response rates in the literature. The reason for this is the sending of the advance and cover letters of the surveys by MIT. In the 2nd stage of the survey, a lower response rate was assumed in accordance with the literature. In the literature, response rates for mail and web survey modes were effective in determining the response rates of the study hypothetically. The expected response rate was determined based on the studies in literature.

The expected response rates in the 1st stage of the survey are 60% for mail and 40% for web, and the corresponding figures for mail and web are 40% and 30% at the 2nd stage, respectively. The reason why response rates are anticipated to be lower than the first stage in the second stage is that the participation and response rates tend to decrease in time. Although Kanuk and Berenson's (1975) study show that cumulative response rates increase as the number of stages in postal surveys increases, response rates at the stage level decrease. In other words, the response rates of the survey after the first wave decrease. In another study conducted by Ladik et al. (2007), it was observed that the response rate in the postal surveys decreased in the second stage of the study. Accordingly, the expected response rates are shown in Table 3.1.2.1 according to the survey stage and survey mode.

Table 3.1.2.1. Response Rates (RRs) Expected
by Survey Stage and Survey Mode

Mode	1st Stage RR	2nd Stage RR
Mail	0.60	0.40
Web	0.40	0.30

The target sample size of the study was determined as 1,991 firms according to the response rates set forth in Table 3.1.2.1. The reason for determining such a target sample size was to guarantee a favorable allocation among strata in the light of the above mentioned response rates.

In the calculation of the sample size per stratum, the prevalence of indicator (p) is defined as 0.5, and the level of precision was set at a coefficient of variation (CV) value of 0.05 in equation (3.1.2.3), as usually done in the literature. Taking t-value as 1.96, it follows that desired tolerance (d) is 0.049, as shown in equation (3.1.2.2). The calculated sample size per stratum was taken as 400, as indicated below. However, since the number of firms (N) in the reformed stratum was 241, the sample size was not calculated in this stratum and all firms were taken. In this context, the formula used in the sample size calculation is as shown in equation (3.1.2.1) (Cochran, 1963).

$$d = V \times t \tag{3.1.2.2}$$

$s^2 = p \times (1-p)$ element variance

$$n = \frac{s^2 \times t^2}{d^2} \tag{3.1.2.1}$$

n= sample size

p= prevalence of the variable

t= (1-α) t value (taken as 1.96 for large samples at 5% significance)

V^2 = desired value of variance, determined according to the CV value that is set

d= desired tolerance (width of confidence interval) depending on V

CV refers coefficient of variance and $CV = \dfrac{v}{p}$ (3.1.2.3)

Minimum sample size per stratum (except for the reformed stratum without sampling) according to equation (3.1.2.1.) is as follows:

$$p = 0.5 \text{ and } CV = \frac{v}{p} = 0.05$$

$$v = 0.05 \times 0.5 = 0.025$$

$$t = 1.96 (assumed)$$

$$d = 0.049$$

$$n = \frac{0.5 \times (1 - 0.5) \times 1.96^2}{0.049^2} = 400$$

Average household size (HH) and proportion of target population within total population (P) are not included in the composition of the sample size formula since this study is not a household survey.

It was further aimed to keep the sample size per stratum (n) at least 400 at the first stage, because in that way, stratum level analysis would be available for this stage, except for the reformed stratum, as mentioned previously. Hereby, it is aimed to reach the number of sufficient respondents in the first stage in the analyzes to be performed after this thesis, which would focus on the topics of the questionnaire.

Another consideration about the sample size was to try and keep the number of respondents who responded to both levels, at the breakdown of stratum, to not remain below 30 (see rightmost column in Table 3.1.2.2). In addition, regardless of stratum separation, it was aimed to keep the number of cases in four different mode switches at the national level above 30. Since its population was small to begin with, neither a minimum sample size of 400 at the first stage nor cells above 30 observations were possible for the reformed stratum.

Other factors that have been effective in the design in Table 3.1.2.2 can be summarized as follows: The sending of mail questionnaires, the return of the mail questionnaires answered, and the data entry of the responses of mail questionnaires were expected to take a long time. The low number of staff in OIZs that will distribute the questionnaies and official documents and the inability of OIZs to allocate sufficient time to research and fatigue that could be experienced in OIZs was another factor that

had a impact on the design. At the same time, the costs of printing, mailing and returning mail questionnaires have influenced this design.

Furthermore, response rates were taken into consideration determining final sample sizes. As mentioned above, since the response rates in the literature showed a downward trend between response waves, expected number of questionnaires was determined accordingly and was presented in Table 3.1.2.2. In the first stage of the research, 956 of the 1991 firms were expected to answer the questionnaires. The second stage questionnaires were planned to a random half sample of the first stage sample. In this context, 164 of the 478 firms were expected to answer the questionnaires in the 2nd stage of the research. The number of expected respondents calculated taking into account the response rates in Table 3.1.2.1. were rounded to the nearest integer, and was shown in Table 3.1.2.2. by stratum and survey stage.

In the light of the considerations listed above, the number of respondents for the first stage was expected to be 420 for each of the specialized and mixed strata, and 116 for reformed one; which meets the minimum size of 400 that was aimed for. In the 2nd stage of the research, the expected number of respondents was 72 for each of the mixed and specialized strata, and 20 for reformed one.

Table 3.1.2.2. Number of Respondents Expected by Survey Stage

		Stage 1			Stage 2	
Stratum	Mode	Number of questionnaires to be sent	Expected number of questionnaires received	Mode	Number of questionnaires to be sent	Expected number of questionnaires received
Specialized	Mail	350	210	Mail	42	17
				Web	63	19
	Web	525	210	Mail	42	17
				Web	63	19
Mixed	Mail	350	210	Mail	42	17
				Web	63	19
	Web	525	210	Mail	42	17
				Web	63	19
Reformed	Mail	96	58	Mail	12	5
				Web	17	5
	Web	145	58	Mail	12	5
				Web	17	5
Total		**1991**[*]	**956**		**478**	**164**

[*] The target sample size was initially 2001. However, 10 firms in reformed stratum were allocated for pilot testing. However, the pilot test could not be carried out in this stratum due to operational reasons.

Sampling selection was started after the listing of sampling frame was completed. The firms were selected by PPS sampling for each stratum except for the reformed stratum, where all firms were included. Because sequence of lists by OIZ yielded implicit stratification, selection provided a PPS, where size denotes the number of firms in OIZs in the sampling frame, is proportional to the number of firms in the OIZ. After the sample selection for the strata was completed, the firms within each stratum were assigned to the mail and web survey modes by systematic random sampling.

3.1.3. Questionnaire Design

1st and 2nd stage questionnaires consist of the web and mail questionnaire versions to be applied in both stages of the survey. Some questions on the 2nd stage questionnaire are the same as the questions on 1st stage questionnaires. This is due to comparison of survey mode and survey mode switches in terms of data quality indicators on the same questions. There are 36 questions in the web and mail versions of the questionnaires applied in the first stage of the survey. The first stage mail questionnaire is included in appendix (see Appendix H). Among questions and topics of interest, those that were considered more curicial were included in this first stage questionnaire, so that the decreasing sample sizes at the second stage would not affect the precision of related statistics on these questions. Introduction page of the first stage web questionnaire and its first page is included in appendix (see Appendix H). There are 34 questions in the web and mail versions of the questionnaires applied in the second stage of the survey. The second stage mail questionnaire and the first pages of the web questionnaire are included in appendix (see Appendix I). The second stage questionnaire was shorter than the first stage. The response time of each of the questionnaires is about 15 minutes. Mail questionnaires were prepared with Microsoft Office Word 2016, and web ones were built free of charge on Google Forms. In order to compare mail and web survey modes, efforts were made to ensure that web and mail questionnaires are as similar as possible in both stages of survey.

The draft of questionnaire has been developed to meet the research needs of General Directorate of Industrial Zones in MIT. In the course of determining questions on the questionnaire, in addition to use of studies in the literature, field needs have

been taken into account. There are many internal and external variables that affect investment and investment decisions. Unstable political, general economic and financial outlook, lack of adequate legal and technical infrastructure, breakdown between university and business world, marketing potancial, high tariff rates by international standards, lack of transparent sectoral policies, stringent labor laws, high tax rates, institutional factors and unsuitable geographic location adversely affect investment decisions and climate (Bajpai et al., 2000; Yemen Polling Center, 2006; Yıldız and Ayyıdız, 2008; Kocadoru, 2009; Yang et al., 2011; Bialowolski and Weziak-Bialowolska, 2013; Harvey et al., 2014; Kiselakova and Kiselak, 2014). In addition to the investment hurdles mentioned, corruption and bribery, sector performance, access to finance, industry conditions, corporate behavior and governance, credibility, incentives, international risk perceptions, bureaucracy, lack of safe and irregular financial systems also have a negative impact on investors (Halis et al., 2007; Berg, 2009; TURKONFED and Ozyegin University, 2009; NSF, 2016). For example, TURKONFED and Ozyegin University (2009) noted that SMEs were insufficient in contemporary management methods and did not display long-term and strategic approaches. After the above mentioned literature review and pre-test in the OIZs, questionnaires have been prepared to determine investment impediments in OIZs and the questionnaires have been finalized.

1st and 2nd stage questionnaires consist of 4 sections. All versions of the questionnaire include the voluntary participation form in section 1, the background of the firms in section 2, the establishment phase of the firms in section 3 and the questions regarding the production stages of the firms in section 4.

1st stage questionnaire consists of questions covering different subject areas. Section 1 contains the purpose and topic of the research, privacy principles, voluntary participation and the importance of research. In section 2, the participants are asked about the demographic background including age, sex, education, and working period. In the section 3, there are questions about structural barriers, containing distance of the OIZ to the market, completion status of infrastructure of the OIZ, completion status of infrastructure of the OIZ, the distance of OIZ to transportation centers (airport, highway, etc.), availability of wastewater treatment plant in the OIZ and effect on

investment decisions of wastewater treatment plant, and financial obstacles containing financing method used by entrepreneurs and access to finance. In the section 4, it is dealt with topics such as inflation, exchange rates, interest rates, the market size of the sector that come into prominence in the OIZ and socio-economic development status of the province where OIZ is located, high input costs and lack of qualified staff including the costs of labor force, immigrants who come to Turkey from Syria, the high cost of inputs such as raw materials, intermediate goods and energy and the lack of qualified staff, current political climate and the security problems.

2nd stage questionnaire consists of questions including different subject areas. Section 1 contains the purpose and topic of the research, privacy principles, voluntary participation and the importance of research as in stage 1. In section 2, the participants are asked about the demographic background including age, sex, education, and working period. In the section 3, there are questions about completion status of infrastructure of the OIZ, completion status of infrastructure of the OIZ, the distance of OIZ to transportation centers (airport, highway, etc.), availability of wastewater treatment plant in the OIZ and effect on investment decisions of wastewater treatment plant, inflation, exchange rates, interest rates, the market size of the sector that come into prominence in the OIZ and socio-economic development status of the province where OIZ is located. In the section 4, it is dealt with topics such as the frequency of change of legislation (especially incentives and tax legislation), compliance studies with European Union legislation, security of intellectual and industrial property rights, high input costs and lack of qualified staff including the costs of labor force, the high cost of inputs such as raw materials, intermediate goods and the lack of qualified staff, the speed of bureaucratic procedures, sufficiency of university-industry cooperation, the effect of university-industry cooperation on investment.

All questions on 1st and 2nd stage questionnaires are mandatory except for skipped (filter) questions. There are filter questions and questions with vertical rating scales in both web and mail version of the 1st and 2nd stage questionnaires. There are 6 open-ended numeric questions on 1st stage questionnaire and 3 open-ended numeric ones on 2nd stage questionnaire. The 1st stage mail questionnaire consists of 11 pages, and the 2nd stage mail questionnaire consists of 10 pages. Web versions of both the

questionnaires have enough numeric characters to fill in the blank space in numerical open-ended questions, and the numeric data entry field for web questionnaire is also formatted. The web version of the first stage questionnaire, which is compatible with different internet browsers, is covered by the paging feature and consists of 22 pages in total. The web version of the second stage questionnaire, which is compatible with different internet browsers, is covered by the paging feature and consists of 19 pages in total. The paper version of the questionnaire has the same design features as the web version to minimize design differences. When respondents answer questions in web mode, the feature to see progression and number of remaining questions for the responder are available. In the web version of the questionnaires, the feature to return to answered questions is available. In this questionnaire, bipolar scales with five-point and unipolar scales with four-point have been used in general. The study that Preston and Colman (2000) have conducted indicates that as the number of response choices increases in rating scales, validity, reliability, respondent preferences and discriminating power rise. On the other hand, dichotomous scales with two categories such as male or female have been frequently used to collect data about the background of target population in especially demographic surveys (HUIPS, 2014). Hence, dichotomous scales have been also used in the questionnaire.

All of the firms have been assigned an unique code to allow for simplicity, data validation to be made more accurately and to measure the internal consistency between survey modes and to decrease the response burden of the respondent in mail survey mode. For this purpose, in the 1st and 2nd stage of the pilot test and research, all firms were assigned a 4-digit numerical unique code between 1000 and 2990. Specifically, the data entry field to be entered is formatted as a 4-digit numeric character to ensure that the unique code is entered correctly on the web questionnaire. In the mail questionnaire, the unique code is assigned to the lower left corner of the consent form page of the questionnaires. In the web questionnaire, unique codes were sent to firms by mail and e-mail, and unique code was asked to be entered on the web questionnaire before starting to response the questionnaire. However, in the mail survey, unique code was sent printed on the questionnaire.

The respondents were not given any incentive to participate in the research. Mail questionnaires were mailed to OIZs, and these questionnaires were distributed to firms through OIZs. The invitations of web questionnaires are sent by mail in the cover letter with the link in which the web address of web questionnaire is located. At the same time, links to the web questionnaires were sent to e-mail addresses of firms and ones of people responsible for corporate communication.

In order to facilitate and accelerate the entry of participants into the web questionnaires, links to the web questionnaires are shortened for the first and second stage web questionnaires by using Google Link Shortener (https://goo.gl/, 2018).

3.1.4. Pre-test

After the sample selection was made to the strata and the questionnaires were prepared according to survey modes, research permission and ethics committee approval were obtained from MIT and Hacettepe University Ethics Commission before pre-test (See Appendix A and B).

Pre-test was carried out in Anadolu OIZ in Ankara province, which was a mixed type of OIZ to develop the questionnaire design and the questions in its content. After the selection of the research sample in Anadolu OIZ, 6 firms were selected by systematic random sampling from the remaining 30 companies. At the same time, survey modes were assigned to these 6 companies by systematic random sampling. The target sample size determined according to survey mode and stage is shown in Figure 3.1.4.1. In the figure, blue painted areas show stage 1 and green areas show stage 2.

Figure 3.1.4.1. Target Sample Size of Pre-test by Survey Mode and Survey Stage
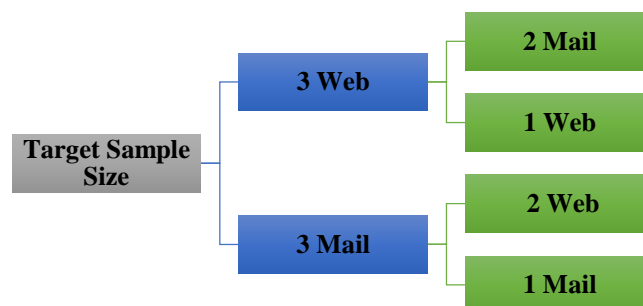
The entry link to the 1st stage web questionnaire was https://goo.gl/tQEx9p and the entry one to the 2nd stage web one was https://goo.gl/t1eFLv. Before pretest, firms were contacted by phone and e-mail, and information about pretest was given to firms. Then, the pretest day was determined and pretest was done with the firms. However, 4 of the 6 firms participated in the pretest of the questionnaire and 2 firms refused to participate. The paper version of the questionnaire was applied on 2 of the 4 firms and the web version of the questionnaire was applied in the other 2. The pretest was performed on the same companies selected in a 2-day period in both mail and web mode. Both mail and web questionnaires were applied on the 1st day except for 1 firm. The reason for this is due to the fact that the firm will not be available for the 2nd day. For this purpose, on September 11, 2018, on the 1st day of the pretest, 1st stage questionnaire was applied on 4 firms in both mail mode and web mode. On September 12, 2018, on the 2nd day of the pretest, the 2nd stage questionnaire was applied on the same firms with the same survey modes.

The pre-test, like the original fieldwork was conducted in a self-administered mode, however, with the researcher present and observing. The questions were clarified when the respondent did not understand the questions. At the same time, the corrections were made on the questionnaires by taking into account the other feedbacks obtained from the respondents (Presser et al., 2004). In this context, grammar, narrative disturbances and highlighting problems were encountered. These problems were corrected, and the first and second stage questionnaires was completed.

3.1.5. Pilot Test

In Hertzog's (2008) study, 30-40 sample sizes per group are appropriate if comparison is to be made in pilot tests. For this reason, the sample size was determined as 35 for each of the mixed and specialized strata. However, the sample size is not selected for reformed stratum. Reason of this is due to the fact that the response rates are predicted to decrease in survey modes in the 2nd stage of the survey and the number of cases in mode allocations is not desired to be reduced to below 30. The pilot test is applied on a total of 70 firms selected by systematic random sampling. Similarly, survey mode allocations in each stratum were assigned to firms by systematic random

sampling. The sample sizes of the pilot test by survey stage and survey mode are shown in Table 3.1.5.1.

Table 3.1.5.1. Pilot Test Target Sample Size by Survey Stage and Survey Mode

Strata	1st stage mode	Allocation of 1st stage	2nd stage mode	Allocation of 2nd stage
Specialized	Mail	14	Mail	3
			Web	5
	Web	21	Mail	3
			Web	5
Mixed	Mail	14	Mail	3
			Web	5
	Web	21	Mail	3
			Web	5
Total		**70**		**32**

As can be seen in Table 3.1.5.1, the sample size according to the strata in the 1st stage of the pilot test is 35 for mixed and 35 for specialized. The sample size according to the strata in the 2nd stage of the pilot test is 16 for mixed and 16 for specialized stratum. The total sample size was 70 for the first stage of the pilot test, and 32 for the second stage of the pilot test.

During the pilot test, all official correspondences, including sending advance letters, questionnaires, and cover letters, were made by MIT. OIZs distributed these documents sent by MIT to the firms selected.

Advance letters were sent by mail to the firms for distribution by the OIZ administrations. Four days after sending the advance letter, mail questionnaire including a voluntary participation form enclosed with the cover letter addressed to the firm was sent by mail to the firms that were assigned mail survey mode via the OIZ administrations. The cover letter containing the web questionnaire entry link has been mailed to the firms assigned to the web survey mode to be distributed by the OIZ administrations. In addition, the cover letter including the web questionnaire entry link have been e-mailed to the registered e-mail addresses of the firms and officials responsible for corporate communication. The link for the 1st stage web survey was https://goo.gl/Qp31Mi and the link for the 2nd stage web survey was https://goo.gl/yQXzxv.

In the scope of the pilot test, selected firms have been assigned unique codes between 2992 and 3067 in 1st and 2nd questionnaires.

In the cover letter sent to the firms both by mail and e-mail, it is stated that only one person responsible for the company's corporate communication should answer questionnaire. At the same time, in the official letter sent to the OIZs, the OIZs were asked to send feedback from the OIZs via e-mail regarding whether cover letters and mail questionnaires were delivered to the firms.

The 1st stage of the pilot test was completed between 14 September 2018 and 23 September 2018. The 2nd stage of the pilot test was completed between October 3, 2018 and October 20, 2018. The contact strategies developed after the pilot test are as follows.

- At this stage, a message was sent to the OIZ administrations by e-mail in the form of a reminder regarding the deadline for sending mail questionnaires to MIT. The procedures mentioned here have been applied for the second stage of the pilot test and in the fieldwork.
- It was determined that some of the firms that participated in web questionnaire did not have current e-mail addresses. In this case, the cover letter including entry link of the web survey was sent to the OIZ administrations by e-mail, and the OIZ administrations was asked to send these cover letters to the current e-mail address of the firms.

3.1.6. Fieldwork

The 1st stage of the fieldwork was carried out between 23 October 2018 and 21 November 2018. The 2nd stage of the field work was carried out between 14 November 2018 and 10 December 2018.

Within the scope of field work, all official correspondences, including sending advance letters, questionnaires, and cover letters, were made by MIT. These documents sent by MIT were distributed to the firms selected by OIZs.

In the 1st and 2nd stage of the research, a personalized advance letter was sent to the selected firms via mail by MIT to be distributed by OIZs

Four days after sending of the advance letter, a personalized cover letter including mail questionnaire with information about the research was sent to selected firms by mail. However, with thought of possible delays that might occur in the post and e-mail addresses may not be up to date, the entry links of the first and second stage web questionnaires were notified to the firms by two different channels. Cover letters including these links were sent to firms by mail and e-mail. Cover letters with web questionnaire link were sent to selected firms for web questionnaires via mail to be distributed by OIZ. Similarly, cover letters were sent to selected firms for mail questionnaires by e-mail. In both mail and web questionnaires, a reminder message was sent to the registered e-mail addresses of OIZs and firms that have not yet participated in survey at least 3 times in different time intervals. The reason for sending reminder messages to the OIZs is that the delays in the postal mailings may be prevented and the registered e-mail addresses of the firms may not be up-to-date. For this purpose, in the reminder message sent to the OIZs, the message was requested to be sent to the current e-mail addresses of the selected firms.

In order to summarize the mentioned process, the survey invitation process regarding the 1st and 2nd stages of the survey is shown in Figure 3.1.6.1 by survey mode and survey stage.

Figure 3.1.6.1. Survey Invitation Process by Survey Mode and Survey Stage
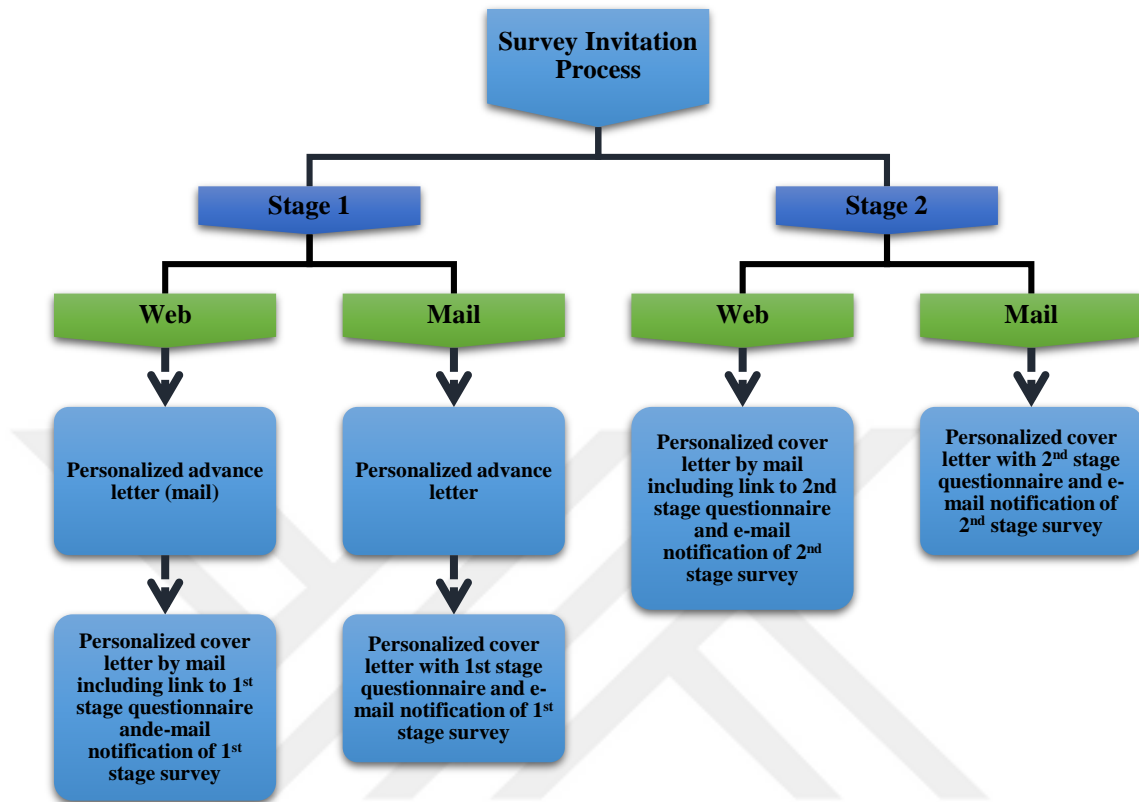
The link for the 1st stage web questionnaire following the abbreviation was https://goo.gl/W1hmsP, and the link for the 2nd stage web questionnaire was https://goo.gl/u6ANHv.

Within the scope of the first stage of the research, 159 of the 186 OIZs are in mixed stratum, 20 of them are in specialized one, and 7 of them are in reformed one. On the other hand, in the second stage of the research, 117 out of 159 are in mixed stratum, 19 of them are in specialized one, and 6 of them are in reformed one.

At the same time, e-mails were sent to the OIZ managements as a reminder regarding the deadline for sending mail questionnaires answered to MIT at different time intervals.

Cover letters and mail questionnaires were sent by post in the 1st stage of the research. However, in the second stage of the study, mail questionnaires and cover letters were sent by cargo to prevent possible delays in the post and to ensure the fast delivery.

A period of two weeks was given to firms to answer to mail or web questionnaires. The mail questionnaires answered by the person responsible for the corporate communication of the firms were handed over to OIZ management. The delivered mail questionnaires were sent in bulk to MIT by cargo in both stages of survey. The web questionnaires answered by the firms were sent on the internet.

At the end of the fieldwork, a message of thanks was emailed to the firms that answered the 1st and 2nd stage web and mail questionnaires. At the same time, a message of thanks was emailed to the OIZ employees who deliver advance letters, cover letters and questionnaires to firms.

3.1.7. Data Processing and Analysis

Participants' responses collected in the 1st and 2nd stage by mail questionnaires were entered in the data entry forms developed on Google Forms. Then, the data collected by the mail and web questionnaires were processed, coded and converted into variable sets. The encoded data were transferred to Microsoft Excel 2016, R software, and IBM SPSS 24 to be analyzed.

3.2. Calculation of Data Quality Indicators and Response Rate

Under this title, methods used in calculation of response rate, primacy effect, item nonresponse, internal consistency and straightlining are explained, respectively.

3.2.1. Response Rate

In the study, since the selected firms are known and have unique codes assigned, AAPOR (American Association for Public Opinion Research)'s disposition codes defined for mail and web survey modes are used. For this purpose, "Disposition Codes for Mail Surveys of Specifically Named Persons" and "Final Disposition Codes for Internet Surveys of Specifically Named Persons" which AAPOR has published for mail and web survey modes has been utilized (AAPOR, 2016).

There is no significant differentiation between final disposition codes used for web and mail survey modes. Therefore, these disposition codes are presented in Table 3.2.1.1 as a whole since they are the basis for calculating response rates.

Table 3.2.1.1. Final Disposition Codes for Mail and Web Surveys

Code	Definition
RR	Response rate
I	Complete interview (1.1)
P	Partial interview (1.2)
R	Refusal and break-off (2.10)
NC	Non-contact (2.20)
O	Other (2.30)
UH	Unknown if household/occupied HU (3.10)
UO	Unknown, other (3.20, 3.30, 3.40, 3.90)
e	Estimated proportion of cases of unknown eligibility that are eligible

Source: AAPOR, 2016.

According to "Standard Definitions" report published by AAPOR in 2016, response rate shows the ratio of the number of interviews completed in the sample to the number of interviews in the sample. In this report, 6 different response rates have been defined, and response rates have been leveled at an increasing rate from RR1 to RR6, depending on partial interviews and unknown eligibility.

e coefficient is the estimated proportion of cases among unknown eligible cases. This can be calculated by dividing the total number of complete or partial interviews, refusals, non-contacts and others by the total number of complete or partial interviews, refusals, non-contacts, others and ineligible cases. e is calculated using the equation (3.2.1.1).

$$e = \frac{I + P + R + NC + O}{I + P + R + NC + O + IE} \qquad (3.2.1.1)$$

RR Levels by AAPOR

RR1 is calculated by dividing the number of completed interviews by the total number of interviews, refusals and break-offs, non-contacts, others with unknown eligibility cases. RR1 is calculated with the help of equation (3.2.1.2.).

$$RR1 = \frac{I}{(I + P) + (R + NC + O) + (UH + UO)} \qquad (3.2.1.2)$$

In addition to RR1, the number of partial interviews is included in the fraction of formula in RR2. RR2 is calculated by means of equation (3.2.1.3).

$$RR2 = \frac{I + P}{(I + P) + (R + NC + O) + (UH + UO)} \qquad (3.2.1.3)$$

Unlike RR2, RR3 does not include the number of partial interviews in the fraction of the formula. However, the number of known eligibility cases in the denominator of the formula is multiplied by the coefficient "e". RR3 is calculated with the help of equation (3.2.1.4).

$$RR3 = \frac{I}{(I + P) + (R + NC + O) + e(UH + UO)} \qquad (3.2.1.4)$$

In addition to RR3, RR4 contains the number of partial interviews in the fraction of the formula. RR4 is calculated with the help of equation (3.2.1.5).

$$RR4 = \frac{I + P}{(I + P) + (R + NC + O) + e(UH + UO)} \qquad (3.2.1.5)$$

Unlike RR4, RR5 does not include the number of partial interviews in the fraction of the formula and the number of unknown eligibility cases and the coefficient "e" in the denominator of the formula. RR5 is calculated with the help of the equation (3.2.1.6).

$$RR5 = \frac{I}{(I + P) + (R + NC + O)} \qquad (3.2.1.6)$$

Finally, in addition to RR5, the number of partial interviews to the denominator of the formula is added in RR6. RR6 is the response rate that produces the highest response rate within these 6 response rates. Finally, RR6 is calculated with the help of

the equation (3.2.1.7). In this study, calculated response rates are presented as percentage.

$$RR6 = \frac{I + P}{(I + P) + (R + NC + O)}$$
(3.2.1.7)

3.2.2. Primacy Effect

Primacy effect, which is one of the data quality indicators, is presented as descriptive statistics in the scope of this study. This data quality indicator is calculated by proportioning the number of responses to each response option and the number of responses to all response options at each item level. The results have been presented as a percentage in this study. The high proportion means that the primacy effect is high (Hippler and Schwarz, 1992).

3.2.3. Item Nonresponse

Item nonresponse is calculated by proportioning nonresponse cases for each item to the total of nonresponse cases and response cases. The results are presented as a percentage in this study. A high proportion means that item nonresponse is high (Nicolaas and Tipping, 2006; Dillman, 2009; Hope et al., 2014).

3.2.4. Internal Consistency

The Cronbach Alpha coefficient, which is a measure of internal consistency, is one of the methods commonly used in estimating the reliability of test measurements of the response options (Barnette, 2000; Cole, 2005; Cho and Kim, 2014). The coefficient is easy to interpret. As the coefficient closes 1, the internal consistency of the items in the scale increases (Yang and Green, 2011). The internal consistency coefficient is calculated using the equation (3.2.4.1) (Cronbach, 1951).

$$\alpha = \frac{n}{n-1}\left(1 - \frac{\sum_i V_i}{V_t}\right)$$
(3.2.4.1)

Here, i shows item, and n represents number of items. V_t shows variance of test scores, and V_i indicates item variance. If Cronbach's alpha coefficient is 0.70 and above, this result can be commented as good (Cortina, 1993; Peterson, 1994).

3.2.5. Straightlining

Simple nondifferentation method, standard deviation of battery method, and scale point variation method are among straighlining measurement methods encountered in the literature. These methods are used for the measurement of straightlining in grid type questions (Krosnick and Alwin, 1988; McCarty and Shrum, 2000; Loosveldt and Beullens, 2017; Kim et al., 2018).

Simple nondifferentation method

In the simplest method used to determine the straigthlining, the proportion of respondents using the only one response option in the grid type questions in the total respondents is calculated. The higher the calculated proportion, the more straightlining. This method is classified as a measure of nondifferentiation.

Standard deviation of battery method

In this method, which is also classified as a measure of variation, the standard deviation of the responses given by each respondent in grid type questions is calculated. The results are presented as the average of the results obtained from selected grid type questions. Higher scores obtained from the method show lower straightlining, that is to say, more differentiation.

Scale point variation method

In this method, which is also classified as a measure of variation, straightlining is calculated by means of the equation (3.2.4.2) (McCarty and Shrum, 2000).

$$P_d = 1 - \sum_{i-1,n} P_i^2 \quad \text{where i is the number of questions in the question set} \quad (3.2.4.2)$$

In the equation, P_i indicates the proportion of the response categories selected in the scales in the grid type questions, and n is the number of response categories in the scales. The results obtained are presented as the average of the results obtained from the selected grid type questions. If the respondent has selected the same response category in all of grid type questions, P_d value will be minimum. However, if the respondent has chosen the different response categories in grid type questions, P_d value will be maximum. P_d value is between 0 and 1. A high P_d value indicates that there is more differentiation, in other words, less straightlining.

3.2.6. Methods of Statistical Analysis

In this study, data quality indicators and response rate are presented by survey mode and survey stage. Therefore, data quality indicators and response rates were analyzed by survey mode and survey stage by using z-test for comparing two proportions, two samples independent t-test, two samples dependent t-test, contingency table analysis (Chi-square) and McNemar's test statistical analysis methods. In this section, these statistical methods and their assumptions are explained as a whole.

Z-Tests for Comparing Proportions and Assumptions

Z-test is a parametric statistical test used to compare the proportions of the two groups. In the independent z-test, one of the z-test types, the groups to be compared are independent of each other. The assumptions of the z-test are as follows (Ugoni and Walker, 1995; Field, 2009; Kim, 2015).

- Independent variable must consist of binary categories.
- Observations should be independent of each other.

Two samples T-Test and Assumptions

Two samples t-tests, which are parametric statistical tests, are used to compare the means of the two groups. In the independent t-test, one of the t-test types, the groups to be compared are independent of each other. On the other hand, in the dependent t-test which is the other type of t-test, the means of the two related groups is compared. The assumptions of the t-test are as follows (Field, 2009; Kim, 2015).

- The dependent variable is interval or ratio scale.
- Independent variable must consist of binary categories.
- Observations should be independent of each other.
- Dependent variable has an approximate normal distribution.
- Variances are approximately equal in the independent t-test. Whether the variances are homogeneous are determined by Levene's test.

Chi-square (χ^2) Test and Assumptions

The chi-square test, a non-parametric test, is one that determines whether two or more variables are independent. The test estimates theoretical expected distributions and compares them against the observed distributions. This test is also an omnibus test statistic. The assumptions of the chi-square test are as follows (McHugh, 2013).

- All observations should be independent of each other.
- Data should be categorical one which is measured at an ordinal or nominal level.
- Data should has two or more categories.
- Sample size should be of sufficient one. Expected frequencies in each cell should be at least 5 in at least 80% of the cells. In addition, expected frequencies in each cell should have at least 1.

However, in case of using chi-square test, in order to reduce the impact of the inflation caused by p value, Bonferroni correction is commonly used in pairwise comparisons.

McNemar's Test and Assumptions

McNemar's test, which is an analysis method comparing dichotomic variables, use binomial and Chi-square distribution. Since this test is a non-parametric test, the data does not have to be distributed normally. The test can be used in the analysis of the measured values before and after in the context of same variable. In addition, the test can also be used in the diagnostic tests (Adedokun and Burgess, 2011; Kim and Lee, 2017).

3.3. Data Quality Variables for Analysis

In this section, variables which are the basis of measurement of primacy effect, item nonresponse, internal consistency and straightlining are given. Firstly, the variable sets discussed in the 1st and 2nd stage questionnaire are presented. Then, the variable sets discussed in terms of data quality indicators are explained. The set of variables for analysis on the 1st stage questionnaire is presented in Appendix N.

In the second stage questionnaire, the variable sets for the analysis is presented in Appendix O together with the question numbers. The variable sets selected in 2nd stage questionnaire is the same as analysis variables of the 1st stage questionnaire.

The variables used in the analysis according to respondent characteristics are sex, age, education, current position of the respondent on behalf of the company in OIZ and number of years that respondent on behalf of the firm in OIZ worked in the current position, respectively. These variables are given in Appendix N and Appendix O together with the variable codes used in the 1st and 2nd stage questionnaires.

The variables determined for the analysis of primacy effect and item nonresponse are selected from repeated grid type questions in the 1st and 2nd stage questionnaires. Accordingly, the variables identified in the 1st and 2nd stage questionnaires are presented below according to the variable labels in Appendix N and Appendix O, respectively.

- Current general economic situation of the country
- Government's 2023 vision and targets
- Current inflation rate
- The current competitive environment between companies
- National income per capita
- Current exchange rates
- Current interest rates
- Current socio-economic development status of the province where the OIZ is located
- Current market volume of the predominant sector in OIZ
- Frequency of changes in legislation in a recent year
- Harmonization studies to the legislation of the European Union in a recent year

Similarly, the variables determined for measuring the internal consistency and straightlining were selected from the repeated grid type questions on the 1st and 2nd stage questionnaires. Straightlining measurement was made between those responding to all of the grid type items specified below. In addition to the variables discussed in

terms of primacy effect and item nonresponse, 3 variables were examined for straightlining. Accordingly, these variables are shown below according to the variable labels mentioned in Appendix N and Appendix O.

- OIZ's distance from the market
- Infrastructure completion status of OIZ
- Distance of OIZ to transportation centers

CHAPTER 4

RESULTS

In this chapter, the results related to respondent characteristics, response rates and data quality indicators of the 1st and 2nd stage of survey are presented. The chapter is divided into six parts. In the first part, respondent characteristics by survey mode are discussed. In the second part, response rates according to survey stages, survey mode and survey mode switches are included. In the third part, the results related to primacy effect are presented by survey stage and survey mode. In the fourth part, results related to item nonresponse are presented by survey stage and survey mode. In the fifth part, the results of internal consistency are presented by survey mode switches. In the sixth part, the results obtained from the methods of straightlining measurement by survey mode are given.

4. 1. Comparative Results of Data Quality Indicators and Response Rate in Web and Mail Surveys

In this part, respondent characteristics, response rates and data quality indicators are examined by survey mode and survey stage, and by stratum under separate headings.

4.1.1. Respondent Characteristics

Respondent characteristics are examined by survey stage, survey mode and stratum, respectively. In this context, respondent characteristics are presented as descriptive statistics based on stage 1 and 2 distinction.

First of all, the characteristics of respondents who answered the 1st stage questionnaires are given in Table 4.1.1.1. Among the characteristics of respondents are sex, age, education and number of years worked in current firm. In addition, occupotional positions of the respondents are also included by survey stage in the following sections.

Table 4.1.1.1. Respondent Characteristics by Survey Mode, Stage 1

	Mode					
	Mail		Web		Total	
Variable	n	%	n	%	n	%
Sex						
Female	32	10.4	81	15.1	113	13.3
Male	275	89.0	457	84.9	732	86.4
Missing	2	0.6	0	0.0	2	0.2
Age						
18-28	12	3.9	39	7.2	51	6.0
29-39	83	26.9	214	39.8	297	35.1
40-50	123	39.8	196	36.4	319	37.7
51-61	74	23.9	72	13.4	146	17.2
62-72	12	3.9	17	3.2	29	3.4
73-83	1	0.3	0	0.0	1	0.1
Missing	4	1.3	0	0.0	4	0.5
Education						
Primary school	15	4.9	19	3.5	34	4.0
Secondary school	16	5.2	21	3.9	37	4.4
High school	55	17.8	112	20.8	167	19.7
Two-year degree	22	7.1	48	8.9	70	8.3
Bachelor degree	164	53.1	272	50.6	436	51.5
Master degree	34	11.0	62	11.5	96	11.3
PhD degree	2	0.6	4	0.7	6	0.7
Missing	1	0.3	0	0.0	1	0.1
Number of Years Worked at Current Firm						
1-4	106	34.3	200	37.2	306	36.1
5-8	70	22.7	128	23.8	198	23.4
9-12	46	14.9	87	16.2	133	15.7
13-16	33	10.7	47	8.7	80	9.4
17-20	25	8.1	45	8.4	70	8.3
21-24	13	4.2	15	2.8	28	3.3
25+	15	4.9	16	3.0	31	3.7
Missing	1	0.3	0	0.0	1	0.1
Total	**309**	**100.0**	**538**	**100.0**	**847**	**100.0**

In the 1st stage of survey, the prominent respondent characteristics by survey mode in Table 4.1.1.1 are as follows.

- The proportion of female respondents in web survey mode (15.1%) is higher than mail survey mode (10.4%), and the proportion of male

respondents in mail survey mode (89%) is higher than web survey mode (84.9%).

- Proportion of respondents in the 40-50 and 51-61 age groups is higher in mail survey mode (39.8% and 23.9%, respectively). The highest proportion of respondents is 29-39 (39.8%) and 40-50 (36.4%) age groups in web survey mode. According to these results, respondents who responded to web survey mode are younger than mail survey mode in general.

- The proportion of respondents with a Bachelor degree is higher in mail mode (53.1%) than web survey mode (50.6%). On the other hand, respondents with a master degree are higher in web survey mode (11.5% in web and 11% in mail). However, in general, it is seen that respondents who have mail surveys have higher education level when it is looked at the cumulative proportions of respondents having master degree and bachelor degree (64.1% in mail versus 62.1% in web).

- The majority of the respondents have worked for 1-4 years at the current firm (37.2% in web versus 34.3% in mail). The proportion of more experienced respondents (17-20 years) is higher in web mode (8.4% in web versus 8.1% in mail).

The characteristics of respondents who responded the 2st stage questionnaires are presented in Table 4.1.1.2.

Table 4.1.1.2. Respondent Characteristics by Survey Mode, Stage 2

Variable	Mode				Total	
	Mail		Web			
	n	%	n	%	n	%
Sex						
Female	8	7.2	30	12.9	38	11.1
Male	98	88.3	185	79.7	283	82.5
Missing	5	4.5	17	7.3	22	6.4
Age						
18-28	6	5.4	13	5.6	19	5.5
29-39	31	27.9	71	30.6	102	29.7
40-50	40	36.0	73	31.5	113	32.9
51-61	21	18.9	41	17.7	62	18.1
62-72	4	3.6	12	5.2	16	4.7
Missing	9	8.1	22	9.5	31	9.0
Education						
Primary school	7	6.3	12	5.2	19	5.5
Secondary school	4	3.6	6	2.6	10	2.9
High school	21	18.9	38	16.4	59	17.2
Two-year degree	12	10.8	23	9.9	35	10.2
Bachelor degree	49	44.1	114	49.1	163	47.5
Master degree	13	11.7	20	8.6	33	9.6
PhD degree	0	0.0	2	0.9	2	0.6
Missing	5	4.5	17	7.3	22	6.4
Number of Years Worked at Current Firm						
1-4	38	34.2	73	31.5	111	32.4
5-8	19	17.1	48	20.7	67	19.5
9-12	14	12.6	27	11.6	41	12.0
13-16	12	10.8	22	9.5	34	9.9
17-20	10	9.0	23	9.9	33	9.6
21-24	9	8.1	8	3.4	17	5.0
25+	4	3.6	14	6.0	18	5.2
Missing	5	4.5	17	7.3	22	6.4
Total	**111**	**32.4**	**232**	**67.6**	**343**	**100.0**

In the 2nd stage of survey, the prominent respondent characteristic by survey mode in Table 4.1.1.2 is as follows:

- The proportion of female respondents who responded to the web survey mode is higher than mail (12.9% in web versus 7.2% in mail). On the other hand, the proportion of female respondents in both modes is less than males (11.1% females versus 82.5% in males).

- The majority of respondents are in the 40-50 age group (32.9%). The proportion of respondents in this age group are higher in mail mode (36.0% in mail versus 31.5% in web).

- The highest proportion of respondents by education level is at Bachelor degree in web mode (49.1% in web versus 44.1% in mail).

- The majority of the respondents have worked for 1-4 years at the current firm (34.2% in mail versus 31.5% in web) as in stage 1.

In the 1st and 2nd stage questionnaires, in the selection of occupational positions, the respondent was allowed to mark multiple options. The position of the respondents is given in Table 4.1.1.3 by frequencies of occupositonal positions. Respondents have more than one occupational position by the 1st and 2nd stage of survey, and details of respondents' choice on multiple occupational position is shown in appendix (see Appendix J).

When the occupational positions of the respondents of the 1st stage questionnaire are examined in Table 4.1.1.3., respondents with the highest percentage belongs to group of occupational position titled "Company owner or partner" (46.3%). The group of occupational position that percentage of respondents is the lowest is "Import, export, marketing managers or directorate personnel" (0.9%).

Similarly, respondents with the highest percentage belongs to group of occupational position titled "Company owner or partner" (44.9%) in Table 4.1.1.3 by the occupational positions of the respondents of the 2nd stage questionnaire. The group of occupational position that percentage of respondents is the lowest "Import, export, marketing managers or directorate personnel" (1.2%).

Table 4.1.1.3. Respondents by Frequencies of Occupational Position, Stage 1 and Stage 2

Stage	Current position of the respondent on behalf of the company in OIZ	Frequency	%
Stage 1	Board member	28	3.3
	Business or plant manager	39	4.6
	Chairman or vice chairman of the Board	41	4.8
	Company manager or deputy director	116	13.7
	Company owner or partner	392	46.3
	General manager or assistant general manager	69	8.1
	Human resources manager or directorate staff	24	2.8
	Import, export, marketing managers or directorate personnel	8	0.9
	Quality, R & D, occupational safety directors or directorate staff	24	2.8
	Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	270	31.9
	Missing	3	0.4
Total		**847**	
Stage 2	Board member	7	2.0
	Business or plant manager	16	4.7
	Chairman or vice chairman of the Board	16	4.7
	Company manager or deputy director	45	13.1
	Company owner or partner	154	44.9
	General manager or assistant general manager	22	6.4
	Human resources manager or directorate staff	8	2.3
	Import, export, marketing managers or directorate personnel	4	1.2
	Quality, R & D, occupational safety directors or directorate staff	11	3.2
	Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	91	26.5
	Missing	32	9.3
Total[1]		**343**	

[1]Since this is a question type with multiple response options, the percentages given do not add up to 100.

The number of respondents according to survey mode and stratum is given in Table 4.1.1.4. Accordingly, in general, the highest proportion of respondents is in mixed stratum, and the lowest one of respondents is in reformed stratum.

Table 4.1.1.4. Respondents by Survey Mode and Stratum, Stage 1 and Stage 2

Mode	Stratum	Stage 1		Stage 2	
		n	%	n	%
Mail	Mixed	137	44.3	59	53.2
	Specialized	125	40.5	40	36.0
	Reformed	47	15.2	12	10.8
Total		309	100.0	111	100.0
Web	Mixed	251	46.7	115	49.6
	Specialized	220	40.9	94	40.5
	Reformed	67	12.5	23	9.9
Total		538	100.0	232	100.0
Overall		**847**	**100.0**	**343**	**100.0**

4.1.2. Response Rate

In this section, the results obtained with respect to response rates are given according to survey stages and survey mode switches in order to be presented more simply and comprehensively. In the calculation of response rates, dispositon codes and response levels determined by AAPOR are used. The formulas of response levels are discussed under the heading of "3.2.1. Response Rate" in the "Methodology" chapter.

The dispositions that constitute the basis for the calculation of the response levels defined by AAPOR are presented in Table 4.1.2.1.

Table 4.1.2.1. Disposition Codes by Stratum, Stage 1

Stratum	Disposition	Disposition Code	n
Reformed	Complete (I)	1.1	114
	Explicit refusal (R)	2.111	5
	Known respondent-level refusal (R)	2.111	1
	Non-Contact (NC)	2.20	7
	Nothing ever returned (UH)	3.19	108
	Selected Respondent Screened Out of Sample (IE)	4.10	6
Total			241
Specialized	Complete (I)	1.1	345
	Explicit refusal (R)	2.111	9
	Known respondent-level refusal (R)	2.111	3
	Non-Contact (NC)	2.20	3
	Nothing ever returned (UH)	3.19	465
	Selected Respondent Screened Out of Sample (IE)	4.10	50
Total			875
Mixed	Complete (I)	1.1	388
	Explicit refusal (R)	2.111	13
	Known respondent-level refusal (R)	2.111	4
	Miscellaneous (O)	2.36	1
	Non-Contact (NC)	2.20	128
	Nothing ever returned (UH)	3.19	290
	Notification that respondent was unavailable during field period (NC)	2.25	2
	Selected Respondent Screened Out of Sample (IE)	4.10	49
Total			875
Overall			**1,991**

The response rates calculated according to dispositons presented in Table 4.1.2.1 are given in Table 4.1.2.2. The levels of response rate are shown by stratum in Table 4.1.2.2. For example, the highest response rate is calculated as 49.5% in the reformed stratum at RR3. The reformed stratum is followed by mixed stratum with 48.4% and specialized stratum with 44.9%, respectively.

Table 4.1.2.2. Response Rates (RRs) by Stratum, Stage 1

Stratum	RR1	RR2	RR3	RR4	RR5	RR6
Reformed	48.5	48.5	49.5	49.5	89.8	89.8
Specialized	41.8	41.8	44.9	44.9	95.8	95.8
Mixed	47.0	47.0	48.4	48.4	72.4	72.4

The dispositons that constitute the basis for the calculation of the RRs defined by AAPOR are presented in Table 4.1.2.3 by survey mode.

Table 4.1.2.3. Disposition Codes by Survey Mode, Stage 1

Mode	Disposition	Disposition Code	All Participants (n)	Participants Selected to the 2nd Stage (n)
Mail	Complete (I)	1.1	309	193
	Known respondent-level refusal (R)	2.111	8	3
	Miscellaneous (O)	2.36	1	1
	Non-Contact (NC)	2.20	60	32
	Nothing ever returned (UH)	3.19	379	231
	Notification that respondent was unavailable during field period (NC)	2.25	2	2
	Selected Respondent Screened Out of Sample (IE)	4.10	37	16
Total			796	478
Web	Complete (I)	1.1	538	221
	Explicit refusal (R)	2.111	27	8
	Non-Contact (NC)	2.20	78	35
	Nothing ever returned (UH)	3.19	484	186
	Selected Respondent Screened Out of Sample (IE)	4.10	68	28
Total			1195	478
Overall			**1,991**	**956**

The RRs calculated by the dispositons specified in Table 4.1.2.3 are given in appendix (see Appendix J) by all participants. At each RR level, web survey mode has a higher response rate than mail survey mode in the 1st stage.

However, the number of firms selected for the first stage of survey is 1991 as previously stated. The number of firms selected for the second stage of survey is 956 of 1991 firms selected from the first stage of survey. 414 of the 956 firms selected to the first stage of survey, answered the 1st stage questionnaires. Therefore, RRs are examined in the context of 956 firms by survey mode. The RR levels for the 1st stage of survey are presented in appendix (see Appendix J) by participants selected to the 2nd Stage. At each RR level, web survey mode has a higher response rate than mail survey mode in the 2nd stage of survey. According to RR3, web survey mode have higher response rate than mail survey one (51.1% versus 43.2%).

Independent two sample z-test is used to test whether RRs vary according to survey mode and results are presented in Table 4.1.2.4. The sample sizes required for the test were taken as the denominators of the RRs. In the 1st stage of the study, a statistically significant difference is found between web and mail survey mode at the RR1, RR2, RR3 and RR4 levels ($p<0.05$). Accordingly, on average, at RR1 and RR2 levels, web survey mode have a statistically higher response rate than mail survey mode ($z = 2.997$, $p = 0.003$). In addition, on average, at RR3 and RR4 levels, web survey mode have a statistically higher response rate than mail survey mode ($z = 3.006$, $p = 0.003$). However, there is no statistically significant difference between survey modes at RR5 and RR6 levels ($p>0.05$).

Table 4.1.2.4. Comparison of Response Rates (RRs) by Survey Mode, Stage 1

Type of RR	Mode	N	Number of Respondents	Mean (RR)	z	p
RR1	Web	1127	538	0,48	2,997	0,003[*]
	Mail	759	309	0,41		
	Total	1886	847	0,45		
RR2	Web	1127	538	0,48	2,997	0,003[*]
	Mail	759	309	0,41		
	Total	1886	847	0,45		
RR3	Web	1080,7	538	0,50	3,006	0,003[*]
	Mail	725,4	309	0,43		
	Total	1806,1	847	0,47		
RR4	Web	1080,7	538	0,50	3,006	0,003[*]
	Mail	725,4	309	0,43		
	Total	1806,1	847	0,47		
RR5	Web	643	538	0,84	0,983	0,326
	Mail	380	309	0,81		
	Total	1023	847	0,83		
RR6	Web	643	538	0,84	0,983	0,326
	Mail	380	309	0,81		
	Total	1023	847	0,83		

[*] $p<0.05$.

The dispositions that constitute the basis for the calculation of the RR levels defined by AAPOR for the 2nd stage of survey are presented in Table 4.1.2.5. In here, RRs are shown by stratum.

Table 4.1.2.5. Disposition Codes by Stratum, Stage 2

Stratum	Disposition	Disposition Code	n
Mixed	Complete (I)	1.1	174
	Explicit refusal (R)	2.111	5
	Known respondent-level refusal (R)	2.111	4
	Non-Contact (NC)	2.20	61
	Nothing ever returned (UH)	3.19	154
	Notification that respondent was unavailable during field period (NC)	2.25	2
	Other (O)	2.30	1
	Selected Respondent Screened Out of Sample (IE)	4.10	19
Total			420
Reformed	Complete (I)	1.1	35
	Explicit refusal (R)	2.111	2
	Non-Contact (NC)	2.20	4
	Nothing ever returned (UH)	3.19	72
	Selected Respondent Screened Out of Sample (IE)	4.10	3
Total			116
Specialized	Complete (I)	1.1	134
	Explicit refusal (R)	2.111	7
	Known respondent-level refusal (R)	2.111	1
	Non-Contact (NC)	2.20	15
	Nothing ever returned (UH)	3.19	237
	Notification that respondent was unavailable during field period (NC)	2.25	1
	Selected Respondent Screened Out of Sample (IE)	4.10	25
Total			420
Overall			**956**

The levels of response rate calculated according to dispositons determined in Table 4.1.2.5 are presented in Table 4.1.2.6. For example, the highest response rate is calculated as 44.6% in mixed stratum at RR3. The mixed stratum is followed by specialized stratum with 37.0% and reformed stratum with 32.4%, respectively.

Table 4.1.2.6. Response Rates (RRs) by Stratum, Stage 2

Stratum	RR1	RR2	RR3	RR4	RR5	RR6
Reformed	31.0	31.0	32.4	32.4	85.4	85.4
Specialized	33.9	33.9	37.0	37.0	84.8	84.8
Mixed	43.4	43.4	44.6	44.6	70.4	70.4

The dispositions that constitute the basis for the calculation of the RR levels defined by AAPOR for the 2nd stage of survey are presented in Table 4.1.2.7. In here, RRs are shown by survey mode.

Table 4.1.2.7. Disposition Codes by Survey Mode, Stage 2

Mode	Disposition	Disposition Code	n
Mail	Complete (I)	1.1	111
	Known respondent-level refusal (R)	2.111	5
	Non-Contact (NC)	2.20	29
	Nothing ever returned (UH)	3.19	214
	Notification that respondent was unavailable during field period (NC)	2.25	3
	Selected Respondent Screened Out of Sample (IE)	4.10	20
Sub Total			382
Web	Complete (I)	1.1	232
	Explicit refusal (R)	2.111	14
	Non-Contact (NC)	2.20	51
	Nothing ever returned (UH)	3.19	249
	Other (O)	2.30	1
	Selected Respondent Screened Out of Sample (IE)	4.10	27
Sub Total			574
Total			**956**

The RRs calculated according to the dispositons specified in Table 4.1.2.7 are presented in appendix (see Appendix J). At each RR level, web survey mode has a higher response rate than mail survey mode in the 2nd stage of survey. For example, web survey mode have higher response rate than mail survey one at RR3 (44.1% versus 33.0%).

Whether or not response RRs vary by survey mode are analyzed using an independent z-test, and results are shown in Table 4.1.2.8. In the 2nd stage of the survey, a statistically significant difference is found between web and mail survey mode at the RR1, RR2, RR3 and RR4 levels ($p < 0.05$). Accordingly, on average, at RR1, RR2, RR3 and RR4 levels, web survey mode have a statistically higher response rate than mail survey mode. However, there is no statistically significant difference between survey modes at RR5 and RR6 levels ($p > 0.05$) as in the 1st stage of the survey.

Table 4.1.2.8. Comparison of Response Rates (RRs) by Survey Mode, Stage 2

Type of RR	Mode	N	Number of Respondents	Mean (RR)	z	p
RR1	Web	547	232	0,42	3,563	0,000[*]
	Mail	362	111	0,31		
	Total	909	343	0,38		
RR2	Web	547	232	0,42	3,563	0,000[*]
	Mail	362	111	0,31		
	Total	909	343	0,38		
RR3	Web	526,3	232	0,44	3,250	0,001[*]
	Mail	336,5	111	0,33		
	Total	862,8	343	0,40		
RR4	Web	526,3	232	0,44	3,250	0,001[*]
	Mail	336,5	111	0,33		
	Total	862,8	343	0,40		
RR5	Web	298	232	0,78	0,684	0,494
	Mail	148	111	0,75		
	Total	446	343	0,77		
RR6	Web	298	232	0,78	0,684	0,494
	Mail	148	111	0,75		
	Total	446	343	0,77		

[*] $p < 0.05$.

Results of Survey Mode Switches

While RRs are revealed according to survey mode switches in the second stage of survey, the path followed is as follows: There are 847 firms responding to the 1st stage questionnaires. These firms are matched with the list of firms selected to the second stage of survey. The number of matching firms is 414. Out of these 414 firms, 279 answered the 2nd stage questionnaires. For this reason, RRs are examined in the context of 414 firms by survey mode switches. The dispositions that constitute the basis for the calculation of the RR levels defined by AAPOR for the 2nd stage of survey are presented in Table 4.1.2.9.

Table 4.1.2.9. Disposition Codes by Survey Mode Switches, Stage 2

Mode Switch	Disposition	Disposition Code	n
Mail-Mail	Complete (I)	1.1	51
	Known respondent-level refusal (R)	2.111	1
	Non-Contact (NC)	2.20	1
	Nothing ever returned (UH)	3.19	25
	Notification that respondent was unavailable during field period (NC)	2.25	1
Total			79
Mail-Web	Complete (I)	1.1	92
	Explicit refusal (R)	2.111	3
	Nothing ever returned (UH)	3.19	19
Total			114
Web-Mail	Complete (I)	1.1	38
	Non-Contact (NC)	2.20	1
	Nothing ever returned (UH)	3.19	48
Total			87
Web-Web	Complete (I)	1.1	98
	Explicit refusal (R)	2.111	1
	Non-Contact (NC)	2.20	2
	Nothing ever returned (UH)	3.19	32
	Other (O)	2.30	1
Total			134
Overall			**414**

The RRs calculated according to the dispositons specified in Table 4.1.2.9 are presented in Table 4.1.2.10. In here, RRs are revealed by survey mode switches. In the 2nd stage of the survey, higher response rates were obtained in mode switches with the web survey mode.

Table 4.1.2.10. Response Rates (RRs) by Survey Mode Switches, Stage 2

Mode Switch	RR1	RR2	RR3	RR4	RR5	RR6
Mail-Mail	64.6	64.6	64.6	64.6	94.4	94.4
Web-Web	73.1	73.1	73.1	73.1	96.1	96.1
Mail-Web	80.7	80.7	80.7	80.7	96.8	96.8
Web-Mail	43.7	43.7	43.7	43.7	97.4	97.4

4.1.3. Primacy Effect

In this section, primacy effect is analyzed on item basis by repeated 14 questions in 1st and 2nd stage questionnaires. In this context, the results of primacy effect are presented by survey mode and stage with descriptive and inferential

statistics. Items discussed are items with five point scales. Within the scope of the research, the real concern about primacy effect is the mode comparison. Therefore, the primacy effect was not interpreted in terms of comparison of research stages and the sample was not limited to the comparison group. Before the statistical analysis of primacy effect, the path followed in the coding of the variables is as follows: The ones who chose the first response option are coded as 1 and the other response options are coded as 0 (Hope et al., 2014). Primacy effect are analyzed using independent z-test.

In the first stage of survey, the variables examined based on survey mode comparison within the scope of primacy effect are given in Figure 4.1.3.1 by the percentage distribution (see Appendix K).

Figure 4.1.3.1. Percentage Distribution of Response Categories by Survey Mode, Stage 1
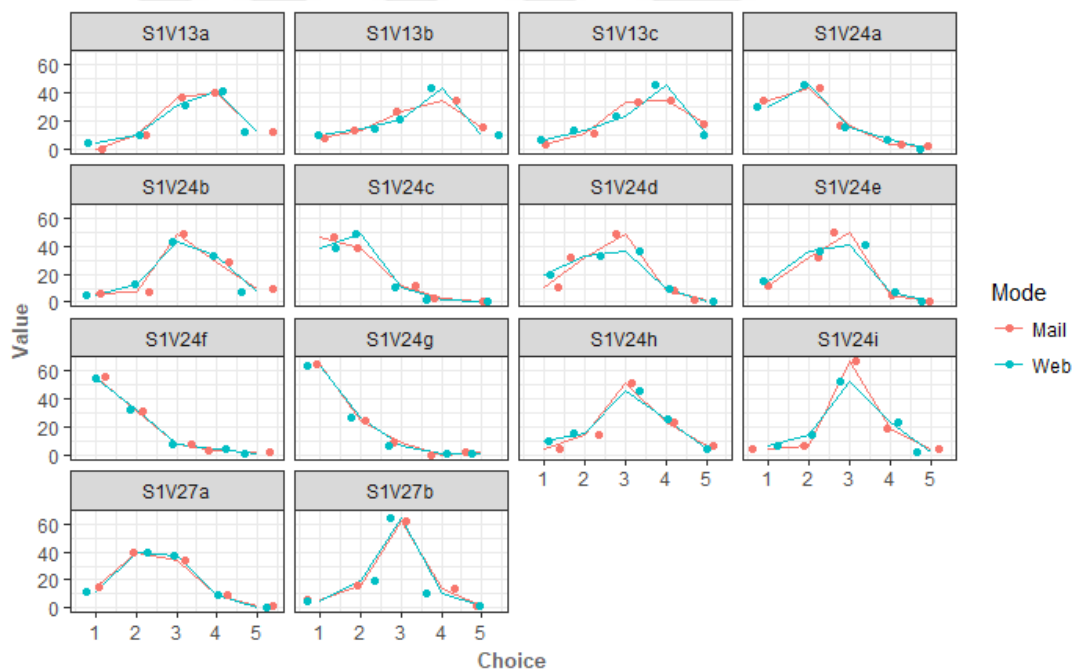
In the first stage, only S1V13a, S1V24d and S1V24h items have statistically significant difference between mail and web survey mode in terms of primacy effect (p<0.05, see Table 4.1.3.1). Accordingly, on average, in the S1V13a item, web survey mode had a significantly higher primacy effect than mail survey mode (z= 3.000, p = 0.003). In addition, on average, in the S1V24d item, web survey mode had a statistically higher primacy effect than mail survey mode (z = 3.234, p = 0.001). Beside this, in the S1V24h item, web survey mode had a statistically higher primacy effect

than mail survey mode ($z = 2.657$, $p = 0.008$). However, there is no statistical difference between mail and web survey mode in terms of primacy effect in other items ($p > 0.05$). In summary, only 3 variables have a significant difference, and in these variables, web survey mode reveals a higher primacy effect than mail survey mode.

Table 4.1.3.1. Item-based Comparison of Primacy Effect by Survey Mode, Stage 1

Variable	Group	N	Number of First Answer Option	Mean	z	p
S1V13a	Web	312	14	0.045	3.000	0.003[*]
	Mail	195	0	0.000		
	Total	507	14	0.028		
S1V13b	Web	312	30	0.096	0.520	0.603
	Mail	194	16	0.082		
	Total	506	46	0.091		
S1V13c	Web	312	21	0.067	1.494	0.135
	Mail	194	7	0.036		
	Total	506	28	0.055		
S1V24a	Web	538	165	0.307	-1.156	0.248
	Mail	286	99	0.346		
	Total	824	264	0.320		
S1V24b	Web	538	24	0.045	-0.858	0.391
	Mail	274	16	0.058		
	Total	812	40	0.049		
S1V24c	Web	538	210	0.390	-1.896	0.058
	Mail	281	129	0.459		
	Total	819	339	0.414		
S1V24d	Web	538	107	0.199	3.234	0.001[*]
	Mail	282	31	0.110		
	Total	820	138	0.168		
S1V24e	Web	538	83	0.154	1.235	0.217
	Mail	278	34	0.122		
	Total	816	117	0.143		
S1V24f	Web	538	297	0.552	-0.171	0.864
	Mail	283	158	0.558		
	Total	821	455	0.554		
S1V24g	Web	538	346	0.643	-0.236	0.813
	Mail	284	185	0.651		
	Total	822	531	0.646		
S1V24h	Web	538	54	0.100	2.657	0.008[*]
	Mail	279	13	0.047		
	Total	817	67	0.082		
S1V24i	Web	538	37	0.069	1.669	0.095
	Mail	277	11	0.040		
	Total	815	48	0.059		
S1V27a	Web	538	61	0.113	-1.622	0.105
	Mail	295	45	0.153		
	Total	833	106	0.127		
S1V27b	Web	538	26	0.048	-0.777	0.437
	Mail	278	17	0.061		
	Total	816	43	0.053		

[*] $p < 0.05$.

In the second stage of survey, the percentage distribution of the response categories under the primacy effect is shown in Figure 4.1.3.2 (see Appendix K), and survey mode-based comparison of the items is shown in Table 4.1.3.2.

Figure 4.1.3.2. Percentage Distribution of Response Categories by Survey Mode, Stage 2
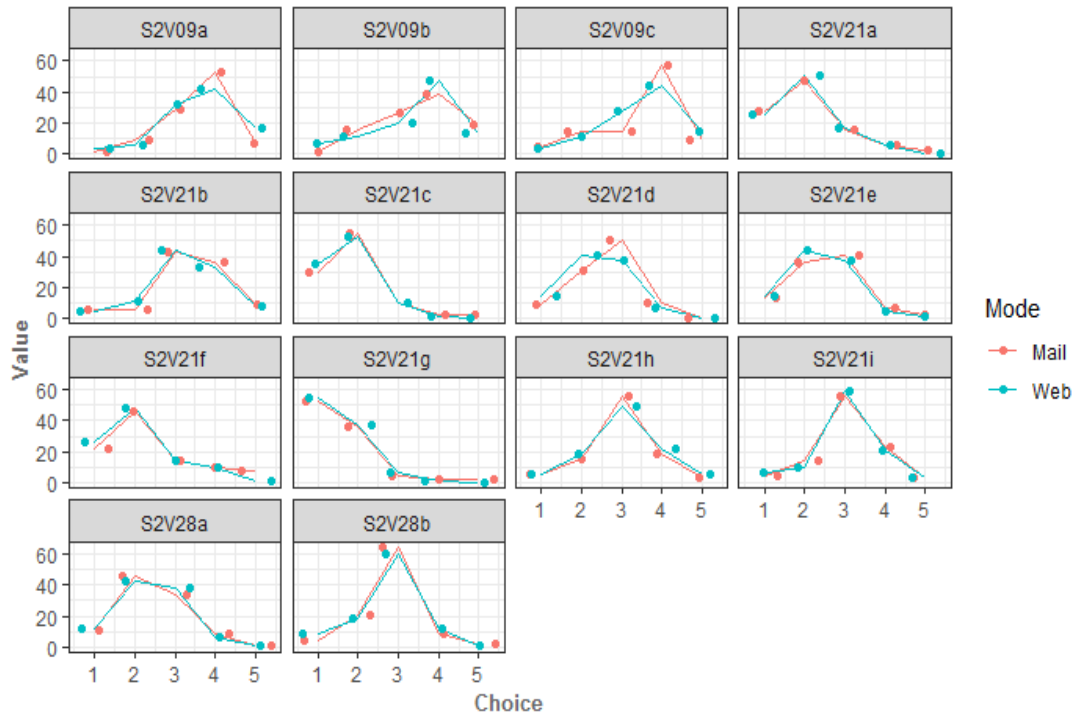
In the second stage of survey, only S2V21a and S2V21d items have statistically significant difference between mail and web survey mode in terms of primacy effect (p<0.05, see Table 4.1.3.2). Accordingly, on average, in the S2V21a variable, web survey mode has a statistically higher primacy effect than mail survey mode (z = 3.935, p = 0.000). In addition, in the S2V21d item, web survey mode had a statistically higher primacy effect than mail survey mode (z = 5.840, p = 0.000). However, there is no statistical difference between mail and web survey mode in terms of primacy effect in other items (p>0.05).

Table 4.1.3.2. Item-based Comparison of Primacy Effect by Survey Mode, Stage 2

Variable	Group	N	Number of First Answer Option	Mean	z	p
S2V9a	Web	145	6	0.041	0.921	0.357
	Mail	62	1	0.016		
	Total	207	7	0.034		
S2V9b	Web	145	11	0.076	1.746	0.081
	Mail	65	1	0.015		
	Total	210	12	0.057		
S2V9c	Web	145	5	0.034	0.885	0.376
	Mail	163	3	0.018		
	Total	308	8	0.026		
S2V21a	Web	232	119	0.513	3.935	0.000[*]
	Mail	103	29	0.282		
	Total	335	148	0.442		
S2V21b	Web	232	10	0.043	-0.659	0.510
	Mail	100	6	0.060		
	Total	332	16	0.048		
S2V21c	Web	232	83	0.358	1.132	0.258
	Mail	102	30	0.294		
	Total	334	113	0.338		
S2V21d	Web	232	95	0.409	5.840	0.000[*]
	Mail	102	9	0.088		
	Total	334	104	0.311		
S2V21e	Web	232	33	0.142	0.230	0.818
	Mail	98	13	0.133		
	Total	330	46	0.139		
S2V21f	Web	232	106	0.457	0.932	0.352
	Mail	102	41	0.402		
	Total	334	147	0.440		
S2V21g	Web	232	128	0.552	0.389	0.697
	Mail	104	55	0.529		
	Total	336	183	0.545		
S2V21h	Web	232	12	0.052	-0.285	0.776
	Mail	101	6	0.059		
	Total	333	18	0.054		
S2V21i	Web	232	16	0.069	1.018	0.309
	Mail	100	4	0.040		
	Total	332	20	0.060		
S2V28a	Web	232	29	0.125	0.279	0.781
	Mail	105	12	0.114		
	Total	337	41	0.122		
S2V28b	Web	232	20	0.086	1.451	0.147
	Mail	98	4	0.041		
	Total	330	24	0.073		

[*] $p < 0.05$.

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4.1.4. Item Nonresponse

In this section, item nonresponse is analyzed on item basis by repeated 11 questions in 1st and 2nd stage questionnaires. Item nonresponse is analyzed by survey stage and stratum for mail survey mode. Since all questions are mandatory in web survey mode, item nonresponse is not examined in web survey mode.

Descriptive statistics are presented in Table 4.1.4.1 by reformed, specialized and mixed strata at each item level. According to the results, the stratum with the highest percentage of item nonresponse is mixed stratum in the 2nd stage of survey, and the stratum with the lowest percentage of item nonresponse is reformed stratum in the 1st stage of survey.

Table 4.1.4.1. Level of Item Nonresponse by Stratum

Variable	Stage 1 (%)				Stage 2 (%)			
	Reformed (n=47)	Specialized (n=125)	Mixed (n=137)	Overall (n=309)	Reformed (n=12)	Specialized (n=40)	Mixed (n=59)	Overall (n=111)
Current general economic situation of the country	4.3	5.6	10.2	7.4	*	5.0	10.2	7.2
Government's 2023 vision and targets	8.5	12	11.7	11.3	*	7.5	13.6	9.9
Current inflation rate	4.3	7.2	12.4	9.1	*	5.0	11.9	8.1
The current competitive environment between companies	6.4	6.4	11.7	8.7	*	7.5	10.2	8.1
National income per capita	8.5	8.8	11.7	10.0	*	10.0	13.6	11.7
Current exchange rates	8.5	5.6	10.9	8.4	*	7.5	10.2	8.1
Current interest rates	6.4	6.4	10.2	8.1	*	5.0	8.5	6.3
Current socio-economic development status of the province where the OIZ is located	6.4	8	12.4	9.7	*	7.5	11.9	9.0
Current market volume of the predominant sector in OIZ	8.5	8.8	12.4	10.4	*	7.5	11.9	9.9
Frequency of changes in legislation in a recent year	2.1	5.6	4.4	4.5	*	2.5	8.5	5.4
Harmonization studies to the legislation of the European Union in a recent year	4.3	10.4	11.7	10.0	*	5	18.6	11.7
Average	**6.2**	**7.7**	**10.9**	**8.9**	*	**6.4**	**11.7**	**8.7**

* There are less than 25 cases (HUIPS, 2014).

Descriptive statistics obtained by survey stages are presented in Table 4.1.4.1 at each item level. According to Table 4.1.4.1, in the 1st stage of survey, the highest percentage of item nonresponse is the item titled "Government's 2023 vision and targets" (11.3%), and the lowest percentage of item nonresponse is the item titled "Frequency of changes in legislation in a recent year" (4.5%). In the 2nd stage of survey, the highest percentage of item nonresponse are the items titled "National income per capita" (11.7%) and "Harmonization studies to the legislation of the European Union in a recent year" (11.7%), and the lowest percentage of item nonresponse is the item titled "Frequency of changes in legislation in a recent year" (5.4%).

The variables are coded for analysis of item nonresponse in mail survey mode, before the statistical analysis of the item nonresponse is performed. Accordingly, the missing values are 1, and the complete ones are 0. Item nonresponse is analyzed using McNemar's test for each of 11 questions asked to the same respondents. The results are presented in Table 4.1.4.2 by survey stage. In the final case, although the average proportion of item nonresponse in the 1st stage of survey was seen to be higher than in the 2nd stage of survey (Table 4.1.4.1), these differences were not statistically significant for any question (p>0.05, see Table 4.1.4.2). In other words, these results show that item nonresponse does not increase in any of the selected questions when the questionnaires are sent to the same respondents for the second time.

Table 4.1.4.2. Item-based Comparison of Item Nonresponse by Survey Stage

Variable	Group	N	Proportion of item nonresponse	P (based on McNemar's test)		
Current general economic situation of the country	Stage 1	51	0.059	0.625[a]		
	Stage 2	51	0.020			
Government's 2023 vision and targets	Stage 1	51	0.059	0.625[a]		
	Stage 2	51	0.020			
Current inflation rate	Stage 1	51	0.039	1.000[a]		
	Stage 2	51	0.020			
The current competitive environment between companies	Stage 1	51	0.039	1.000[a]		
	Stage 2	51	0.020			
National income per capita	Stage 1	51	0.039	1.000[a]		
	Stage 2	51	0.020			
Current exchange rates	Stage 1	51	0.020	1.000[a]		
	Stage 2	51	0.059			
Current interest rates	Stage 1	51	0.020	1.000[a]		
	Stage 2	51	0.020			
Current socio-economic development status of the province where the OIZ is located	Stage 1	51	0.039	1.000[a]		
	Stage 2	51	0.020			
Current market volume of the predominant sector in OIZ	Stage 1	51	0.059	0.625[a]		
	Stage 2	51	0.039			
Frequency of changes in legislation in a recent year	Stage 1	51	0.098	0.219[a]		
	Stage 2	51	0.059			
Harmonization studies to the legislation of the European Union in a recent year	Stage 1	51	0.059	0.625[a]		
	Stage 2	51	0.098			
				t	**df**	**p**
Average of all 11 questions above	Stage 1	51	0.050	0.400	50	0.691
	Stage 2	51	0.020			

[*] p<0.05. [a] Binomial distribution used.

For the analysis of average item nonresponse, the binary values for each of the 11 questions were averaged for each case. Then, these averages were compared by survey stage using dependent t-test (see Table 4.1.4.2). Similar to the results obtained at question levels, on average, it is seen that there is no increase in item nonresponse at aggreggate level by survey stage (p>0.05).

4.1.5. Internal Consistency

Within the scope of internal consistency analysis, responses of the firms responding to web and mail versions of both stage questionnaires are examined. Analysis of internal consistency is performed on repeated 14 items in the 1st and 2nd stage questionnaire. These items are presented by survey mode switch together with scale statistics in appendix (see Appendix L). Survey mode switches consist of mail-mail, web-web, mail-web and web-mail. For this purpose, Cronbach alfa (α) coefficients are given at each item level, and then statistical analyzes are made. First of all, α coefficients are summarized in Table 4.1.5.1 by survey mode switches.

Table 4.1.5.1. Coefficient Alfa Values by Survey Mode Switch

Variable	Mail-Mail	Web-Web	Mail-Web	Web-Mail
OIZ's distance from the market	0.45	0.73	0.63	0.78
Infrastructure completion status of OIZ	0.85	0.75	0.78	0.72
Distance of OIZ to transportation centers	0.88	0.56	0.74	0.26
Current general economic situation of the country	0.56	0.79	0.50	-0.03
Government's 2023 vision and targets	0.90	0.73	0.80	0.69
Current inflation rate	0.36	0.67	0.55	0.60
The current competitive environment between companies	0.75	0.62	0.61	0.79
National income per capita	0.54	0.61	0.63	0.61
Current exchange rates	0.36	0.72	0.55	0.40
Current interest rates	0.25	0.72	0.49	0.73
Current socio-economic development status of the province where the OIZ is located	0.79	0.65	0.72	0.66
Current market volume of the predominant sector in OIZ	0.86	0.58	0.60	0.80
Frequency of changes in legislation in a recent year	0.59	0.63	0.55	0.37
Harmonization studies to the legislation of the European Union in a recent year	0.84	0.67	0.53	-0.65
Average	**0.62**	**0.67**	**0.62**	**0.48**

In Table 4.1.5.1, on average, α coefficients by survey mode switches are web-web (0.67), mail-mail (0.62), mail-web (0.62) and web-mail (0.48). Results show that a higher internal consistency has been obtained in survey mode switches with web mode. When survey mode switches are evaluated on item basis, the prominent results are as follows.

- In survey mode switches, in general, the item with the highest coefficient alpha is the one labeled "Government's 2023 vision and targets" (0.90) in mail-mail survey mode switch. From the result of this item, it can be said that the internal consistency of the respondents' answers is quite high in mail-mail survey mode switch. On the other hand, the item with the lowest

coefficient alpha is the one labeled "Harmonization studies to the legislation of the European Union in a recent year" (-0.65) in web-mail survey mode switch. This result means that the responses in this mode switch has low consistency. The fact that this coefficient has negative values is due to the negative correlation between the questions in the scales.

- In mail-mail survey mode switch, the item with the highest coefficient alpha is the one labeled "Government's 2023 vision and targets" (0.90), and the item with the lowest coefficient alpha is the one labeled "Current interest rates" (0.25). That is, the item labeled "Current interest rates" in mail-mail survey mode switch has the lowest internal consistency.

- In web-web survey mode switch, the item with the highest coefficient alpha is the one labeled "Current general economic situation of the country" (0.79), and the item with the lowest coefficient alpha is the one labeled "Distance of OIZ to transportation centers" (0.56).

- In mail-web survey mode switch, the item with the highest coefficient alpha is the one labeled "Government's 2023 vision and targets" (0.80), and the item with the lowest coefficient alpha is the one labeled "Current interest rates" (0.49).

- In web-mail survey mode switch, the item with the highest coefficient alpha is the one labeled "Current market volume of the predominant sector in OIZ" (0.80), and the item with the lowest coefficient alpha is the one labeled "Harmonization studies to the legislation of the European Union in a recent year" (-0.65).

Each pair of observations is encoded as 1 if respondents produce the same answer options and is encoded as 0 if they produce different answer options in the 1st and 2nd stage questionnaires before statistical analysis of the internal consistency. The dummy variable obtained after encoding has been analyzed for mode switches, because there is not formal internal consistency comparison test in IBM SPSS. Internal consistency is analyzed by survey mode switch using Chi-Square Test and with Bonferroni correction for pairwise comparisons. The results of the analysis are

presented in Table 4.1.5.2 by survey mode switches, where the mean denotes consistent responses.

Table 4.1.5.2. Item-based Comparison of Internal Consistency by Survey Mode Switch

Variable	Mode Switch	n	Mean	SD	χ²	df	p
OIZ's distance from the market	Mail-Mail	21	0.5714	0.50709	2.901	3	0.407
	Web-Web	48	0.5625	0.50133			
	Mail-Web	53	0.6226	0.48936			
	Web-Mail	15	0.8000	0.41404			
Infrastructure completion status of OIZ	Mail-Mail	19	0.5263	0.51299	1.239	3	0.744
	Web-Web	48	0.5625	0.50133			
	Mail-Web	54	0.5000	0.50469			
	Web-Mail	17	0.6471	0.49259			
Distance of OIZ to transportation centers	Mail-Mail	20	0.6500	0.48936	3.784	3	0.286
	Web-Web	48	0.4583	0.50353			
	Mail-Web	52	0.5769	0.49887			
	Web-Mail	16	0.6875	0.47871			
Current general economic situation of the country	Mail-Mail	35	0.5714	0.50210	3.707	3	0.295
	Web-Web	94	0.6596	0.47639			
	Mail-Web	80	0.5875	0.49539			
	Web-Mail	28	0.4643	0.50787			
Government's 2023 vision and targets	Mail-Mail	34	0.7059	0.46250	3.962	3	0.266
	Web-Web	94	0.5532	0.49983			
	Mail-Web	80	0.6750	0.47133			
	Web-Mail	27	0.5926	0.50071			
Current inflation rate	Mail-Mail	34	0.6471	0.48507	1.013	3	0.798
	Web-Web	94	0.6170	0.48872			
	Mail-Web	79	0.5823	0.49634			
	Web-Mail	28	0.5357	0.50787			
The current competitive environment between companies	Mail-Mail	34	0.6176	0.49327	5.401	3	0.145
	Web-Web	94	0.5000	0.50268			
	Mail-Web	80	0.6250	0.48718			
	Web-Mail	28	0.7143	0.46004			

Table 4.1.5.2. Item-based Comparison of Internal Consistency by Survey Mode Switch (continued)

Variable	Mode Switch	n	Mean	SD	χ^2	df	p
National income per capita	Mail-Mail	34	0.5588	0.50399	0.929	3	0.818
	Web-Web	94	0.5213	0.50223			
	Mail-Web	78	0.5897	0.49506			
	Web-Mail	27	0.5185	0.50918			
Current exchange rates	Mail-Mail	35	0.5429	0.50543	20.013	3	0.570
	Web-Web	94	0.6489	0.47986			
	Mail-Web	79	0.5570	0.49992			
	Web-Mail	29	0.5862	0.50123			
Current interest rates	Mail-Mail	35	0.5143	0.50709	50.314	3	0.150
	Web-Web	94	0.7021	0.45978			
	Mail-Web	79	0.6709	0.47289			
	Web-Mail	29	0.7586	0.43549			
Current socio-economic development status of the province where the OIZ is located	Mail-Mail	34	0.5882	0.49955	0.950	3	0.813
	Web-Web	94	0.5319	0.50166			
	Mail-Web	78	0.6026	0.49254			
	Web-Mail	27	0.5556	0.50637			
Current market volume of the predominant sector in OIZ	Mail-Mail	33	0.8485	0.36411	120.766	3	0.005[*]
	Web-Web	94	0.5319	0.50166			
	Mail-Web	78	0.6667	0.47446			
	Web-Mail	28	0.7500	0.44096			
Frequency of changes in legislation in a recent year	Mail-Mail	32	0.5625	0.50402	0.655	3	0.884
	Web-Web	94	0.5000	0.50268			
	Mail-Web	85	0.5529	0.50014			
	Web-Mail	30	0.5333	0.50742			
Harmonization studies to the legislation of the European Union in a recent year	Mail-Mail	32	0.6875	0.47093	10.591	3	0.661
	Web-Web	94	0.5851	0.49535			
	Mail-Web	78	0.5897	0.49506			
	Web-Mail	28	0.5357	0.50787			

[*] $p < 0.05$.

In Table 4.1.5.2, there is no statistically significant difference between survey mode switches in terms of internal consistency except for the item labeled "Current market volume of the predominant sector in OIZ" ($p < 0.05$). Therefore, the pairwise

comparisons of mode switches for this item are presented in Table 4.1.5.3 by survey mode switch. These results show that there is no statistically significant difference between mail-web and other mode switches. Similarly, there is no statistically significant difference between web-mail and other mode switches. On the other hand, internal consistency in mail-mail survey mode switch (Mean = 0.8485, SD = 0.36411) is higher than web-web survey mode one (Mean = 0.5319, SD = 0.50166, see Table 4.1.5.2).

Table 4.1.5.3. Survey Mode Comparisons for the "Current market volume of the predominant sector in OIZ" Question

Categories	Mail-Mail	Web-Web	Mail-Web	Web-Mail	Total
Different answer options (0)	5_a	44_b	$26_{a,b}$	$7_{a,b}$	82
Same answer options (1)	28_a	50_b	$52_{a,b}$	$21_{a,b}$	151
Total	33	94	78	28	233

Each subscript letter denotes a subset of mode switch categories whose column proportions do not differ significantly from each other at the 0.05 level.

4.1.6. Straightlining

Straightlining, one of the data quality indicators, is examined on grid type questions. For this purpose, questions with five point scale in the 1st and 2nd stage questionnaires is included in the measurement of this quality indicator. Scales with items containing one or more unanswered items are excluded from the analysis. Variable sets are selected from repeated questions on 1st and 2nd stage questionnaires. According to three different methods used in the measurement of straighlining, straighlining is calculated in the context of three different variable sets and the measurement results obtained are given in Figure 4.1.6.1 by survey mode and survey stage (see Appendix M).

Figure 4.1.6.1. Straightlining Measures by Survey Mode and Survey Stage
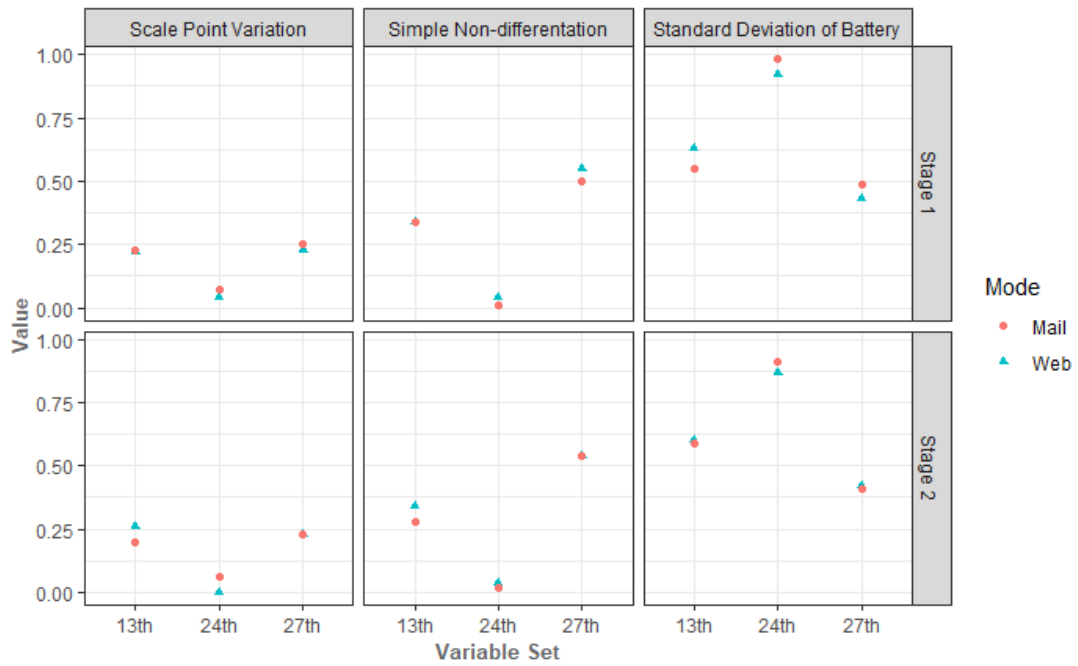
Because it was known that each respondent had a straightlining measurement result in grid type questions that were repeated across stages, these results obtained from the straightlining measurement methods at the level of the variable set were accepted as data for the statistical analysis. For the Simple Nondifferentation Method, grid type questions in which the same response scales were selected in the form of a straight line, were coded as 1, and the ones without straightlining were coded as 0. This was compared through z-test for proportions for survey modes. For the other two methods, differences by mode were analyzed using independent t-test. The results are presented in Table 4.1.6.1, and the compared means and proportions are presented in Appendix M.

Table 4.1.6.1. Item-based Comparison of Straightlining by Survey Mode and Survey Stage

			Methods								
			Simple Non-differentiation Method			**Standard Deviation of Battery Method**			**Scale Point Variation Method**		
Variable Set	**Group**	**N**	**Mean**	**z**	**p**	**t**	**df**	**p**	**t**	**df**	**p**
Stage 1											
13th	Web	312	0.340	0.026	0.980	1.525	442.464	0.128	-0.281	499	0.779
(9th in Stage 2)	Mail	189									
24th	Web	538	0.043	2.628	0.009[*]	-2.561	592.299	0.011[*]	-1.136	791	0.256
(21st in Stage 2)	Mail	255									
27th	Web	538	0.548	1.210	0.226	-1.612	812	0.107	-1.210	812	0.227
(28th in Stage 2)	Mail	276									
Stage 2											
9th	Web	145	0.338	0.856	0.392	0.190	201	0.850	1.369	201	0.173
	Mail	58									
21th	Web	232	0.043	0.918	0.359	-1.158	322	0.248	-1.335	322	0.183
	Mail	92									
28th	Web	232	0.539	-0.034	0.973	0.100	328	0.921	0.034	328	0.973
	Mail	98									

[*] $p<0.05$.

According to Table 4.1.6.1, there is no statistically significant difference between survey modes in both the 1st and 2nd stages of survey ($p>0.05$), except for the 24th variable set in the 1st stage, in terms of straightlining. Accordingly, on average, in 24th variable set, web survey mode have a statistically higher straightlining than mail survey mode ($z = 2.628$, $p = 0.009$) in Simple Non-differentiation Method. Similarly, and in the same variable set, in Standard Deviation of Battery Method, web survey mode have a statistically higher straightlining than mail survey mode (t (592.3) = -2.561, $p = 0.011$) on average.

CHAPTER 5

DISCUSSION AND CONCLUSION

Both public institutions and private enterprises or organizations frequently use survey methods to assess the efficiency and productivity of their work in decision-making and policy development. In addition, increased internet usage, developing technological infrastructure and facilities, and consequently reducing the costs of data collection methods, have led organizations and researchers to be more selective in selecting data collection methods (Duffy, 2002; Couper and Miller, 2008; Schaeffer and Dykema, 2011; Yeager et al., 2011). On the other hand, in self admininstered modes, the response rates have increased in comparison to the interview modes, and the fact that these modes are generally less costly have raised the interest in self administered modes (Pruchno and Hayden, 2000; Couper, 2011). In addition, web surveys seem to be increasingly preferred by many individuals and institutions in recent years in comparison to other methods in terms of rapid data collection, processing and analysis of answers, and access to large populations (Couper, 2000). For these reasons, especially in the last 20 years, the trend of data collection with web survey methods has increased, unlike other methods (Jansen et al., 2007; Brinkman, 2009; Mcpeake et al., 2014).

The aim of this thesis is to analyze mail and web survey methods in terms of data quality indicators and response rates. In this context, measurement error and nonresponse error which are ones of nonsampling error types, and the response rate are discussed in the study. In the scope of measurement error, mail and web survey modes are examined in terms of data quality indicators such as primacy effect, internal consistency and straightlining. On the other hand, item nonresponse is discussed in the context of nonresponse error. The target population of the study are the firms that are in the production stage in OIZs in Turkey. Although there are studies on the comparison of web and mail survey mode in literature, there are no studies comparing these two survey modes in national literature. In addition, a study on the comparison of web and mail survey mode for OIZs could not be reached in international literature.

Implications

In this study, response rates and data quality indicators by the 1st and 2nd stage of survey are presented in the context of comparison of web and mail survey mode. For this purpose, firstly, response rates according to survey stage, survey mode and survey mode switches are included. Secondly, the results of primacy effect and straightlining are presented by survey stage and survey mode. Thirdly, the results of internal consistency are given by survey mode switches. Lastly, the results are presented by survey stage and mail survey mode in terms of item nonresponse.

Response rates are examined by survey stage and survey mode. In the 1st and 2nd stage of survey, a statistically significant difference is found between web and mail survey mode at AAPOR's RR1, RR2, RR3, and RR4 levels ($p<0.05$). Accordingly, on average, at RR1, RR2, RR3 and RR4 levels, web survey mode have a statistically higher response rate than mail survey mode. The same holds for the 2nd stage of the survey. In general, in both stages of research, due to the postal delays and the higher response burden in mail questionnaire, it is thought that the response rates are lower in mail survey mode. In addition, mail questionnaires have to be submitted to the OIZ management by the firms after mail questionnaires are answered. This is considered to be another factor that causes response rates to decrease in mail survey mode because it brings a burden to responding firms. Besides these, because some of the firms participating in the 1st stage of survey were also invited to the 2nd stage, the feedbacks obtained from OIZs and firms during the fieldwork showed that firms tended to not respond to the 2nd stage mail questionnaires. On the other hand, it can be said that the OIZs that provide infrastructure services to firms have an institutional structure and have a widespread internet network, contribute to be achieved higher response rates in web survey mode. However, there is no statistically significant difference between web and mail survey modes at RR5 and RR6 levels ($p>0.05$) in the 1st and 2nd stage of survey. Conventional survey methodology shows that response rates are higher in mail survey mode (Truell et al., 2002; Shih and Fan, 2008; Manfreda et al., 2008; Baruch and Holtom, 2008; Hoonakker and Carayon, 2009; Shin et al., 2012; Edwards et al., 2014). Therefore, the expected response rates for mail survey mode in research design were higher than web survey mode. This was the reason for the hypothesis that

response rates are higher in mail survey mode. However, results showed the opposite, like some studies in the literature suggested (McAbe et al., 2002; Kaplowitz et al., 2004; Mackety, 2007; Greenlaw and Brown-Welty, 2009; Saunders, 2012). When the findings were evaluated in the context of survey mode switches, the web mode being the second stage mode resulted in higher response rates for most of the response rate types (from RR1 to RR4), implying web mode is more efficient for follow-up surveys of OIZs in Turkey (see Table 4.1.2.10). The highest response rate was achieved when the first mode was mail, and the second was web mode. On the other hand, when switching from web mode to mail mode, a lower response rate than other mode switches was obtained. It could be argued that response burden is higher for the mail mode, and when the mode switch is made from a mode with higher burden than one with lower burden, there is higher tendency of nonresponse. It could also be argued that the second wave could have potentially lead to fatigue in OIZ administrations, which might be the reason for lower response rates for mode switches where the second wave was mail.

Primacy effect is analyzed on item basis by survey stage and survey mode. Only three questions have a statistically significant difference between web and mail survey mode in terms of primacy effect in the first stage of survey ($p < 0.05$). On average, in these questions, web survey mode had a statistically higher primacy effect than mail survey mode. On the other hand, in the second stage of survey, only two questions have statistically significant difference between two modes in terms of primacy effect ($p < 0.05$), where again web survey showed higher primacy effect. Thus, there are higher primacy effect in web mode for some items, although they are not generally significant at all item levels. When the variables with significant results in terms of primacy effect are examined, it is seen that there are questions concerning the local and domestic economic dynamics and structural status of OIZ in the province where OIZ is located. The reason why primacy effect is significant in the mentioned questions may be that vertical rating scales were used in surveys rather than horizontal rating scales. Because respondents cannot process all the answer categories in the same way and eye tracking cannot be done well enough (Höhne and Lenzner, 2015). Another reason may be the response scale efffect. The scale effect occurs when the

response options are presented (Smyth et al., 2012). In addition, visual design of the scales in mail and web surveys may also cause a primacy effect (Christian and Dillman, 2004). However, web and mail questionnaires have a similar design as possible in order to provide comparison within the scope of this thesis.

Internal consistency is analyzed on item basis according to survey mod switches. Overall, Cronbach alpha coefficients obtained by web-web survey mode switch are higher than other survey mode switches, but these results are not statistically significant. On the other hand, a statistically significant difference is found between survey mode switches in the item labeled "Current market volume of the predominant sector in OIZ" ($p < 0.05$). Internal consistency in mail-mail survey mode switch is significantly higher than web-web survey mode one for this question. Differences between other survey mode switches are not significant ($p > 0.05$). The fact that the results are generally not significant shows that the answers to the same questions repeated over both stages are consistent.

Straightlining, one of the other data quality indicators, is examined according to survey stage and survey mode. For this purpose, questions with five point scale in grid format were included in the measurement of this quality indicator. Similar to previous work by Kim et al. (2018), this study showed that there were no statistically significant difference between survey modes in two different stages of survey by the variable set ($p > 0.05$). However, the findings obtained from Simple Non-differentation Method and Standard Deviation of Battery Method in the 24th variable set in the 1st stage of the survey show a statistically significant difference between web and mail survey modes ($p < 0.05$). Accordingly, on average, web survey mode have a statistically higher straightlining than mail survey mode in Simple Non-differentation Method and Standard Deviation of Battery Method. When looking at the items with statistically significant differences, undesirable speeding of respondent may have caused straightlining. In other words, the risk of occurrence of straigthlining rises as response speed increases (Zhang, 2013; Schonlau and Toepoel, 2015). Also, it is likely that straightlining is higher in questions with the grid or matrix format than single-item questions (Liu and Cernat, 2018). Therefore, in future studies, reducing the number of questions in grid or matrix type questions or setting trade-off between single-item and

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grid questions in the design of the questionnaires may contribute to the increase in data quality. In addition, splitting grid or matrix type questions may be another factor contributing to the reduction of straightlining (Couper et al., 2013).

Item nonresponse is analysed by survey stage in mail survey mode. In web survey mode, all questions are mandatory, so item non-response analysis was not possible. The results show that there is no statistically significant difference in item nonresponse between stage 1 and stage 2 at both item level and agregate level (p>0.05).

According to the feedback from the fieldwork, the sending of advance letters by MIT have increased the willingness of the firms to participate in the research and the legitimacy of the research, as in some studies in the literature (Kanuk and Berenson, 1975; Bartholomew and Smith, 2006).

As in other studies (Tourangeau and Smith, 1996; Höglinger et al., 2016), it is observed during the fieldwork that some of the firms have a tendency not to participate in the survey as there are sensitive questions about the evaluation of the country's political and economic agenda in questionnaires.

A summary of the hypothesis formulated for this thesis is presented in Table 5.1 (see section of "2.5. Hypotheses" for detailed information).

Table 5.1. Summary of Findings by Hypothesis

Indicators	Hypotheses	Comparison Group	Comparison Level	Findings by Mode	
				Web	Mail
Response rate	Higher RR in mail	Survey mode	From R1 to RR6	High	Low
Primacy effect	No difference	Survey mode	Item	High	Low
Item nonresponse	No difference	Survey stage	Item and aggregate	NA[*]	No significant difference
Internal consistency	No difference	Survey mode switch	Item	Low	High
Straightlining	No difference	Survey mode	Item set	High	Low

[*]NA: Not Available

Recommendations

Firstly, some recommendations are in connection with the frame. In the current situation, it is seen that the existing records in the OIZ registration system where OIZ and firm information are saved are not up to date. At the same time, some of OIZs and firms do not have any records in this registration system. On the other hand, this system is not sufficiently useful and accessible in terms of data entry of firms and OIZs. For this purpose, a more useful data recording system should be developed and the legal ground should be prepared in detail to encourage or enforce data entry. In order to do this, first of all, MIT or OIZ Senior Organization should purchase service to re-construct the existing recording system. In addition, OIZs and firms are required to make regulations in the OIZ Law as a prerequisite for benefiting from the incentives to encourage data entry to the system. Also, for a sustainable recording system, the system should be monitored and evaluated at regular intervals. In this way, the system will serve both the development of data-based policy by the Ministry and will guide domestic and foreign companies that want to invest in OIZs. The creation of a sustainable registration system is also important for future research.

Recommendations based on observations during the fieldwork are as follows: Due to the postal delays, mail surveys do not reach the companies on time. Because of the lack of postal addresses in MIT registration system, it was not possible to send a mail to mail addresses of firms. Therefore, the addresses of firms from OIZs were requested. However, most of the firms' postal address records could not be sent by OIZs. Therefore, OIZs mediated the distribution of mail questionnaires to selected firms. However, each OIZ could not pay the same attention and effort to the distribution of mail questionnaires. One of the reasons for this is that some OIZs are not adequately institutionalized and there is not enough personnel. In addition, some OIZs are located outside of the city center and the settlement areas. All these reasons led to the late delivery of the questionnaires to firms or the failure to deliver them at all. In order to overcome these problems, research design should be done by considering the number of personnel in OIZs. At the same time, OIZs outside the city center should be given an additional time due to the late delivery of the surveys.

Since it is possible to reproduce mail questionnaires sent to the firm by OIZs by photocopy, the questionnaires allocated to firms may lead to confusion in return. In rare cases, OIZ management copied mail questionnaires, which led to problems related to unique ID codes. This may put mode comparison at risk in terms of data quality indicators. In addition, mail questionnaires cause overloads and delays in the organization's documentation systems, and data loss due to missing pages in return. At the same time, it is observed that there are costs such as paper, ink, envelope and postage during sending and returning of the mail questionnaires. On the other hand, data processing and coding in mail survey mode takes much more time than web survey mode. Unlike web surveys, in mail survey mode responses are not automatically processed, so there is need for manual data entry. This can cause data processing errors to occur and take an additional time.

Similarly, in web surveys, there is little need to follow the instructions on the filter questions as the questions are directed to the respondent by the system. However, it has been observed that the instructions for the filter questions in postal surveys have not been followed too much. On the other hand, the return of responses in web surveys is much faster than in the mail surveys. In addition, the confidentiality of responses and respondent in web surveys is better and easier than mail surveys.

On the other hand, explicit refusals can be identified better than mail surveys based on the design of web surveys. In mail surveys, explicit refusals are not known, except that the firms explicitly declare that they will not participate in the survey.

In the light of the discussions in the last three paragraphs, and in terms of the total survey error components observed, these two survey modes have strengths and weaknesses compared to each other. Although the response rate is higher in web survey mode than in mail survey mode in both stages of the survey, it is seen that web survey mode is relatively disadvantageous compared to mail survey mode in terms of measurement error. In terms of primacy effect, internal consistency and straightlining which are considered within the scope of measurement error, mail survey mode is more advantageous than web survey mode in only some items. However, when both modes

are compared with trade-offs taking into account survey errors and costs, it is considered appropriate to use web survey mode in future studies.

As a result, this thesis makes a significant contribution to national literature as it is the first study to compare data quality and response rates in web and mail survey modes. It also makes an important contribution to international literature in terms of being the first methodological study in the context of OIZ. On the other hand, as firms are selected by random sampling in the scope of survey, the findings can be generalized to OIZs in which firms with e-mail addresses that have been at the production stage in Turkey. In addition, the study carries the characteristics of business survey and establishment survey because it covers firms. In this respect, this study has a special importance. On the other hand, this study will contribute to the establishment of the research infrastructure and research culture of the MIT. Similarly, through the data obtained through this study, investment barriers faced by firms in production stage in OIZs will be presented in a comprehensive manner. In general, it is seen that web survey mode has no disadvantage except for straigthlining, primacy effect and internal consisteny at only some item levels compared to mail survey mode according to findings and fieldwork observations. Therefore, when reasons mentioned above are evaluated with a holistic approach, it is considered that the web survey mode will be useful for future research in OIZs in Turkey.

Limitations

The findings of this research can not be generalized to populations with different characteristics and populations within different study areas, since the research have been conducted on the firms that have been at the production stage in the OIZs. For the reasons mentioned above, more generalized results can be produced by comparing modes based on mail and web survey modes considering these factors in future studies.

The definition of mail survey is not the conventional, because a hub was used in each OIZ to distribute questionnaires, and provided postal and e-mail addresses were missing in terms of many firms in sample frame. Another limitation was

exclusion of firms whose e-mail addresses were not obtained. it could be that these firms do not use internet or it could be that they just did not report these addresses.

This study examined respondent characteristics as descriptive statistics according to survey mode. However, the effects of the respondent characteristics by survey mode and data quality indicators were not evaluated. Thus, it can be evaluated whether these characteristics have an impact on survey mode and data quality indicators in future studies.

On the other hand, because only closed-ended questions are evaluated in terms of data quality indicators in this study, it will be useful to examine open-ended questions in terms of data quality.

In addition, this study examined effect of only one direction of response order effect, which was the primacy effect. Recency effect, which is the other aspect of the response order effect, was excluded from the analysis. However, it is seen that primacy effect and recency effect are generally evaluated together in the literature (Barnette, 2000; Höhne and Lenzner, 2015). For this reason, it is necessary to redesign response scales to enable to analyze primacy effect and recency effect together in future research.

In the present study, on the other hand, it was mandatory to answer questions by design in web survey mode, while there was no such mandatory in questions in mail survey mode. Web survey mode in which response options are non-mandatory can be compared with mail survey mode in terms of examination of item nonresponse in subsequent studies.

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APPENDIX A

UNIVERSITY ETHICS COMMITTEE APPROVAL

T.C.
HACETTEPE ÜNİVERSİTESİ
Rektörlük

Sayı   : 35853172-010.99
Konu : Tevfik BULUT Hk.

NÜFUS ETÜTLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

Enstitünüz Sosyal Araştırma Yöntemleri Anabilim Dalı yüksek lisans programı öğrencilerinden **Tevfik BULUT**'un **Dr. Öğr. Üyesi Tuğba ADALI** danışmanlığında yürüttüğü **"Organize Sanayi Bölgelerindeki Firmalar Üzerinde İnternet ve Posta Veri Toplama Yaklaşımlarının Karşılaştırılması"** başlıklı tez çalışması, Üniversitemiz Senatosu Etik Komisyonunun **4 Eylül 2018** tarihinde yapmış olduğu toplantıda incelenmiş olup, etik açıdan uygun bulunmuştur.

Bilgilerinizi ve gereğini saygılarımla rica ederim.

e-imzalıdır
Prof. Dr. Rahime Meral NOHUTCU
Rektör Yardımcısı

APPENDIX B
RESEARCH PERMISSION ISSUED BY MIT

T.C.
BİLİM, SANAYİ VE TEKNOLOJİ BAKANLIĞI
Sanayi Bölgeleri Genel Müdürlüğü

Sayı : 66190861 - 903.99- E.20747   28/05/2018
Konu : Diğer Personel Özlük İşleri

Sayın Tevfik BULUT
Sanayi Ve Teknoloji Uzmanı

İlgi   :   25/05/2018 tarihli ve 40723 sayılı dilekçeniz.

İlgi dilekçenizde; *"Organize Sanayi Bölgelerindeki Firmalar Üzerinde Posta ve İnternet Veri Toplama Yaklaşımlarının Karşılaştırılması"* konusu özelinde metodolojik bir araştırma yapılacağından bahisle araştırmanın bütün aşamaları için araştırma izni talep edilmektedir.

Yapılacak araştırmanın bütün aşamalarına yönelik Genel Müdürlüğümüzce araştırma izni verilmesi uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Yaşar ÖZTÜRK
Genel Müdür

Güvenli Elektronik
İmzalı Aslı ile Aynıdır.
28.05.2018

Tevfik BULUT
Sanayi ve Teknoloji
Uzmanı

APPENDIX C

ADVANCE LETTER EXAMPLE, STAGE 1

T.C.
SANAYİ VE TEKNOLOJİ BAKANLIĞI
Sanayi Bölgeleri Genel Müdürlüğü

Sayın …………………………..

Sanayi ve Teknoloji Bakanlığından ve Hacettepe Üniversitesi Etik komisyonundan alınan bir izinle yapılacak araştırma kapsamında, Türkiye'nin üretim üssü olan OSB'lerimizde üretimde bulunan firmalarımızın karşılaştığı yatırım engelleri konusunda bilgi edinilmesi amaçlanmaktadır. Bu bağlamda, bilgi toplamak için iki farklı zaman aralığında, iki aşamalı ve eş zamanlı olarak hem posta hem de web anketi uygulanacaktır. Dolayısıyla, **önümüzdeki 2 hafta içinde**, araştırmanın **1. aşaması olarak** OSB'nizdeki **firmanıza bir anket gönderilecektir.** Firmanız araştırmaya tesadüfi olarak seçilmiştir. Bu anket ile aynı zamanda **firmanızın yatırıma dair yaşadığı sorunları paylaşabilmeniz için önemli bir fırsat sunulmaktadır.**

Posta anketi, firmanız tarafından yetkilendirilmiş **kurumsal iletişimden sorumlu kişi ya da kişilerden <u>sadece birisi</u> tarafından** cevaplanması gerekmektedir. Zamanında cevaplanmayan anket Bakanlığımızca değerlendirmeye alınamayacaktır.

Yapılacak çalışma, firmanızın sahada karşılaştığı yatırım engellerini ortaya koymakla kalmayacak, aynı zamanda veriye dayalı politika geliştirilmesinde de önemli rol oynayacaktır. Bu itibarla, üretimde bulunan siz değerli firmamızın bu çalışmaya katılım sağlaması ve karşılaştığı yatırım engelleri konusunda sesini duyurması Bakanlığımız ve sizler için son derece önemlidir.

Konuyla ilgili detaylı bilgi için tevfik.bulut@sanayi.gov.tr elektronik posta adresinden iletişime geçebilirsiniz.

İşbirliğiniz ve özveriniz için şimdiden teşekkür ederiz.

Saygılarımla.

23/10/2018

Metin DEMİRTÜRK

Daire Başkanı V.

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APPENDIX D

COVER LETTER FOR WEB QUESTIONNAIRE, STAGE 1

T.C.
SANAYİ VE TEKNOLOJİ BAKANLIĞI
Sanayi Bölgeleri Genel Müdürlüğü

Sayın……………………………..

Daha önce tarafınıza gönderdiğimiz mektupta anlatıldığı üzere, Türkiye'nin üretim üssü olan OSB'lerimizde üretimde bulunan firmalarımızın karşılaştığı yatırım engelleri konusunda bilgi edinilmesi amacıyla bir araştırma yürütülmektedir. Ankete katılımınız OSB'lerdeki yatırım engelleri hakkında daha detaylı bilgi edinmemize ve Sanayi ve Teknoloji Bakanlığının veriye dayalı politika geliştirmesine son derece önemli bir katkı sağlayacaktır.

Araştırmanın **1. aşaması** olarak OSB'nizdeki firmanızın **kurumsal ve kurumsal iletişimden sorumlu kişinin e-mail adresine anket linki gönderilecektir.** Bu e-mail tarafınıza ulaşmadıysa ankete **https://goo.gl/W1hmsP** adresinden ulaşabilirsiniz. Web anketine **…. kodu** ile giriş yapabilirsiniz.

Anketi cevaplayacak kişinin OSB içinde faaliyet gösteren firmanızın kurumsal iletişiminden sorumlu veya kurumsal iletişim konularında yetkilendirilmiş olması gerekmektedir. Anket, firmanızda bahsedilen bu özelliğe sahip **sadece bir kişi** tarafından cevaplanacaktır.

Cevaplarınızın bize ulaşabilmesi için anketimizi **en geç 14/11/2018** tarihi mesai bitimine kadar cevaplayarak lütfen "**gönder**" butonuna tıklayınız. Aksi takdirde, cevaplarınız Bakanlığımıza ulaşmayacağından değerlendirmeye alınamayacaktır.

Araştırma ile ilgili sorularınız, görüşleriniz ve önerileriniz için **tevfik.bulut@sanayi.gov.tr** elektronik posta adresinden iletişime geçebilirsiniz.

Yardımınız ve işbirliğiniz için şimdiden teşekkür ederiz.

Saygılarımla.

26/10/2018

Metin DEMİRTÜRK
Daire Başkanı V.

APPENDIX E

COVER LETTER FOR MAIL QUESTIONNAIRE, STAGE 1

T.C.
SANAYİ VE TEKNOLOJİ BAKANLIĞI
Sanayi Bölgeleri Genel Müdürlüğü

Sayın………………………...

Daha önce tarafınıza gönderdiğimiz mektupta anlatıldığı üzere, Türkiye'nin üretim üssü olan OSB'lerimizde üretimde bulunan firmalarımızın karşılaştığı yatırım engelleri konusunda bilgi edinilmesi amacıyla bir araştırma yürütülmektedir. Ankete katılımınız OSB'lerdeki yatırım engelleri hakkında daha detaylı bilgi edinmemize ve Sanayi ve Teknoloji Bakanlığının veriye dayalı politika geliştirmesine son derece önemli bir katkı sağlayacaktır.

Araştırmanın **1. aşamasında,** anketi cevaplayacak kişinin OSB içinde faaliyet gösteren firmanızın kurumsal iletişiminden sorumlu veya kurumsal iletişim konularında yetkilendirilmiş olması gerekmektedir. Anket, firmanızda bahsedilen bu özelliğe sahip **sadece bir kişi** tarafından cevaplanacaktır.

Cevaplarınızın bize ulaşabilmesi için anketimizi **en geç 14/11/2018** tarihi mesai bitimine kadar lütfen faaliyette bulunduğunuz OSB yönetimine teslim etmeyi unutmayınız. Aksi takdirde, cevaplarınız Bakanlığımızca değerlendirmeye alınamayacaktır.

Araştırma ile ilgili sorularınız, görüşleriniz ve önerileriniz için **tevfik.bulut@sanayi.gov.tr** elektronik posta adresinden iletişime geçebilirsiniz.

Yardımınız ve işbirliğiniz için şimdiden teşekkür ederiz.

Saygılarımla.

26/10/2018

Metin DEMİRTÜRK

Daire Başkanı V.

APPENDIX F

COVER LETTER FOR WEB QUESTIONNAIRE, STAGE 2

T.C.
SANAYİ VE TEKNOLOJİ BAKANLIĞI
Sanayi Bölgeleri Genel Müdürlüğü

Sayın……………………….

Daha önce tarafınıza gönderdiğimiz mektupta anlatıldığı üzere, Türkiye'nin üretim üssü olan OSB'lerimizde üretimde bulunan firmalarımızın karşılaştığı yatırım engelleri konusunda bilgi edinilmesi amacıyla bir araştırma yürütülmektedir. Ankete katılımınız OSB'lerdeki yatırım engelleri hakkında daha detaylı bilgi edinmemize ve Sanayi ve Teknoloji Bakanlığının veriye dayalı politika geliştirmesine son derece önemli bir katkı sağlayacaktır.

Araştırmanın **2. aşaması** olarak OSB'nizdeki firmanızın **kurumsal ve kurumsal iletişimden sorumlu kişinin e-mail adresine anket linki gönderilecektir.** Bu e-mail tarafınıza ulaşmadıysa ankete **https://goo.gl/u6ANHv** adresinden ulaşabilirsiniz. Web anketine **…. kodu** ile giriş yapabilirsiniz.

Anketi cevaplayacak kişinin OSB içinde faaliyet gösteren firmanızın kurumsal iletişiminden sorumlu veya kurumsal iletişim konularında yetkilendirilmiş olması gerekmektedir. Anket, firmanızda bahsedilen bu özelliğe sahip **sadece bir kişi** tarafından cevaplanacaktır.

Cevaplarınızın bize ulaşabilmesi için anketimizi **en geç 03/12/2018**tarihi mesai bitimine kadar cevaplayarak lütfen "**gönder**" butonuna tıklayınız. Aksi takdirde, cevaplarınız Bakanlığımıza ulaşmayacağından değerlendirmeye alınamayacaktır.

Araştırma ile ilgili sorularınız, görüşleriniz ve önerileriniz için **tevfik.bulut@sanayi.gov.tr** elektronik posta adresinden iletişime geçebilirsiniz.

Yardımınız ve işbirliğiniz için şimdiden teşekkür ederiz.

Saygılarımla.

24/10/2018

Metin DEMİRTÜRK
Daire Başkanı V.

APPENDIX G

COVER LETTER FOR MAIL QUESTIONNAIRE, STAGE 2

T.C.
SANAYİ VE TEKNOLOJİ BAKANLIĞI
Sanayi Bölgeleri Genel Müdürlüğü

Sayın ………………………………..

Daha önce tarafınıza gönderdiğimiz mektupta anlatıldığı üzere, Türkiye'nin üretim üssü olan OSB'lerimizde üretimde bulunan firmalarımızın karşılaştığı yatırım engelleri konusunda bilgi edinilmesi amacıyla bir araştırma yürütülmektedir. Ankete katılımınız OSB'lerdeki yatırım engelleri hakkında daha detaylı bilgi edinmemize ve Sanayi ve Teknoloji Bakanlığının veriye dayalı politika geliştirmesine son derece önemli bir katkı sağlayacaktır.

Araştırmanın **2. aşamasında,** anketi cevaplayacak kişinin OSB içinde faaliyet gösteren firmanızın kurumsal iletişiminden sorumlu veya kurumsal iletişim konularında yetkilendirilmiş olması gerekmektedir. Anket, firmanızda bahsedilen bu özelliğe sahip **sadece bir kişi** tarafından cevaplanacaktır.

Cevaplarınızın bize ulaşabilmesi için anketimizi **en geç 03/12/2018** tarihi mesai bitimine kadar lütfen faaliyette bulunduğunuz OSB yönetimine teslim etmeyi unutmayınız. Aksi takdirde, cevaplarınız Bakanlığımızca değerlendirmeye alınamayacaktır.

Araştırma ile ilgili sorularınız, görüşleriniz ve önerileriniz için **tevfik.bulut@sanayi.gov.tr** elektronik posta adresinden iletişime geçebilirsiniz.

Yardımınız ve işbirliğiniz için şimdiden teşekkür ederiz.

Saygılarımla.

24/10/2018

Metin DEMİRTÜRK

Daire Başkanı V.

APPENDIX H

MAIL QUESTIONNAIRE, STAGE 1

<div align="center">

GÖNÜLLÜ KATILIM FORMU

</div>

Sayın katılımcı,

Bu anket, organize sanayi bölgelerinde (OSB) üretimde bulunan firmaların karşılaştığı yatırım engellerini anlamak amacıyla **iki aşamalı** olarak yapılan araştırmanın **birinci aşama anketidir.**

Bu araştırma için Sanayi ve Teknoloji Bakanlığı Sanayi Bölgeleri Genel Müdürlüğünden ve Hacettepe Üniversitesi Etik Komisyonundan gerekli izinler alınmıştır. Anket, Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri Bilim Uzmanlığı Programındaki bir tez kapsamında uygulanmaktadır.

Anket 36 soru içermektedir ve cevaplama süresi yaklaşık 15 dakikadır. Cevaplarınız OSB'lerdeki yatırım engelleri hakkında daha detaylı bilgi edinmemize ve Sanayi ve Teknoloji Bakanlığının veriye dayalı politika geliştirmesine önemli bir katkı sağlayacaktır. Bütün cevaplar gizli olup, sizlerden elde edilen cevaplar araştırmanın amacı dışında kullanılmayacaktır. Araştırmaya katılım gönüllü olup, çalışmanın herhangi bir bölümünde yanıtlamayı bırakabilirsiniz. Bu durum size hiç bir sorumluluk getirmeyecektir. Araştırma ile ilgili sorularınız için aşağıda iletişim bilgileri yazılı kişilerle iletişime geçebilirsiniz.

Cevaplarınızın bize ulaşabilmesi için anketi bitirdikten sonra üzerinde firma ismi olmaksızın zarfı kapatarak **OSB yönetimine** teslim etmeyi lütfen unutmayınız.

Firmanızı temsil etme konusunda yetkilendirildiyseniz ve araştırmaya katılmayı kabul ediyorsanız lütfen aşağıdaki "Kabul ediyorum" kutucuğunu işaretleyerek (X) anketimizi cevaplamaya başlayınız.

☐ **Kabul ediyorum**

☐ **Kabul etmiyorum**

<div align="center">

Anket Doldurma Tarihi

Gün		Ay		Yıl			
					2	0	1	8

</div>

Araştırmacı

Adı-Soyadı: Sanayi ve Teknoloji Uzmanı Tevfik Bulut
Adres: T.C. Sanayi ve Teknoloji Bakanlığı, Çankaya, Ankara
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Sorumlu Araştırmacı

Adı-Soyadı: Dr. Öğr. Üyesi Tuğba Adalı
Adres: Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Beytepe, Ankara
Telefonu: 0 312 297 73 67
E-posta: tadali@hacettepe.edu.tr

DEMOGRAFİK ARKA PLAN

LÜTFEN YANITLARINIZI <u>DAİRE İÇİNE</u> ALINIZ.

1. Cinsiyetiniz nedir?

[1] Erkek

[2] Kadın

2. Tamamladığınız yaşınız kaçtır?
LÜTFEN HER BİR KUTUCUĞA BİR RAKAM GELECEK ŞEKİLDE, <u>BİTİRDİĞİNİZ</u> YAŞI GİRİNİZ.

3. Tamamladığınız eğitim düzeyi nedir?
8 YILLIK İLKÖĞRETİM MEZUNUYSANIZ LÜTFEN <u>ORTAOKULU</u> İŞARETLEYİN.

[1] Herhangi bir okuldan mezun değil

[2] İlkokul

[3] Ortaokul

[4] Lise

[5] Ön Lisans

[6] Lisans

[7] Yüksek Lisans

[8] Doktora

4. OSB içindeki firmanızda kaç yıldır çalışıyorsunuz?
LÜTFEN HER BİR KUTUCUĞA BİR RAKAM GİRİNİZ. EĞER 1 YILDAN AZ ÇALIŞMISSANIZ İLK KUTUCUĞA 0, İKİNCİ KUTUCUĞA 1 RAKAMINI GİRİNİZ.

5. OSB içindeki firmanızda <u>şu anki</u> pozisyonunuz nedir?
FİRMANIZDA BİRDEN FAZLA POZİSYONDA ÇALIŞIYORSANIZ <u>BİRDEN FAZLA SEÇENEĞİ</u> İŞARETLEYEBİLİRSİNİZ.

[A] Firma sahibi

[B] Firma ortağı

[C] Firma müdürü

[D] Firma müdür yardımcısı

[E] Yönetim kurulu başkanı veya başkan yardımcısı

[F] Yönetim kurulu üyesi

[G] Genel müdür veya genel müdür yardımcısı

[H] İşletme veya tesis müdürü

[İ] Koordinatör

[J] AR-GE müdürü

[K] İnsan kaynakları müdürü

[L] Muhasebe, finans, satın alma veya mali işler müdürü

[M] Diğer *(LÜTFEN BELİRTİNİZ)*

_____

6. OSB içindeki firmanızda bu pozisyonda kaç yıldır çalışıyorsunuz?

LÜTFEN HER BİR KUTUCUĞA BİR RAKAM GİRİNİZ. EĞER 1 YILDAN AZ ÇALIŞMIŞSANIZ İLK KUTUCUĞA 0, İKİNCİ KUTUCUĞA 1 RAKAMINI GİRİNİZ.

7. Firmanızın bu <u>OSB içindeki ilk kuruluş yılı</u> nedir?

LÜTFEN CEVABINIZI HER BİR KUTUCUĞA BİR RAKAM GELECEK ŞEKİLDE, 4 HANELİ OLARAK GİRİNİZ. FİRMANIZ AYNI OSB İÇİNDE BİRDEN FAZLA SEKTÖRDE FAALİYET GÖSTERİYORSA LÜTFEN ŞU AN ÇALIŞTIĞINIZ SEKTÖRE GÖRE YANITLAYINIZ.

8<u>. OSB içindeki firmanız OSB içinde</u> hangi yıl üretim aşamasına geçmiştir?

LÜTFEN CEVABINIZI HER BİR KUTUCUĞA BİR RAKAM GELECEK ŞEKİLDE, 4 HANELİ OLARAK GİRİNİZ.

9. OSB içindeki firmanızın ağırlıklı olarak faaliyet gösterdiği sektörün NACE Revizyon 2-Altılı Ekonomik Faaliyet Sınıflaması kodu nedir?

NACE KODU, ANA FAALİYET KONUSUNA KARŞILIK GELEN 6'LI NACE KODU OLACAKTIR. BU KOD 6 HANELİ KODDUR. ÖRNEĞİN, "<u>ÇELİK VARİL VE BENZER MUHAFAZALARIN İMALATI</u>" KONUSUNDA ÜRETİM YAPAN BİR FİRMANIN NACE REVİZYON 2-ALTILI EKONOMİK FAALİYET SINIFLAMA KODU <u>25.91.01</u> OLACAKTIR. LÜTFEN NACE REV. 2 KODUNU HER İKİ HANE ARASINDA NOKTA OLACAK ŞEKİLDE 6 HANELİ OLARAK GİRİNİZ.

10. OSB içindeki firmanızın <u>ilk kuruluş aşamasında</u> bulundunuz mu?

[1] Evet ➡ *"EVET" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

[2] Hayır ➡ *"HAYIR" İSE 23. SORUYA GEÇİNİZ.*

11. OSB içindeki firmanız <u>ilk kuruluş aşamasında</u> finansmana erişimde (teminat gösterme, finansal kiralama ve kredi kullanımı gibi konular) herhangi bir sorun yaşadı mı?

[1] Evet ➡ *"EVET" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

[2] Hayır ➡ *"HAYIR" İSE 13. SORUYA GEÇİNİZ.*

12. Finansmana erişimde yaşadığınız problemler firmanızın bu OSB'de <u>ilk kurulma kararını</u> nasıl etkiledi?

[1] Ne Olumlu Ne Olumsuz

[2] Olumsuz

[3] Çok Olumsuz

[4] Son Derece Olumsuz

13. Aşağıda belirtilen faktörler firmanızın OSB'deki <u>ilk kurulma kararını</u> nasıl etkiledi?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) OSB'nizin pazara olan mesafesi	1	2	3	4	5
b) OSB'nizin altyapı tamamlanma durumu	1	2	3	4	5
c) OSB'nizin ulaşım merkezlerine (hava yolu, karayolu vb.) olan mesafesi	1	2	3	4	5

14. Firmanızın OSB içinde <u>ilk kurulma kararını</u> verirken, firmanızı <u>olumlu</u> etkileyen <u>en önemli faktör</u> aşağıdakilerden hangisidir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Ülkenin genel ekonomik durumu

[2] Finansmana erişim

[3] OSB'nin altyapı tamamlanma durumu

[4] OSB'nin pazara olan mesafesi

[5] OSB'nin ulaşım merkezlerine olan mesafesi

[6] Girdi maliyetleri

[7] Nitelikli personel istihdamı

[8] Ülkenin genel siyasi ortamı

[9] OSB'lere ve OSB'lerdeki firmalara sağlanan teşviklerin yeterlilik durumu

[10] OSB'lerde sunulan ofis hizmetleri

[11] Diğer *(LÜTFEN BELİRTİNİZ)* _____

BU BÖLÜMDE, SİZLERE YATIRIMI <u>OLUMSUZ</u> ETKİLEYEN FAKTÖRLERİN HANGİLERİNİN ÖNE ÇIKTIĞINI ANLAMAYA DAİR SORULAR YÖNELTİLECEKTİR.

15. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?
LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Enflasyon oranı

[2] Faiz oranları

[3] Döviz kurları

[4] Firmalar arası rekabet ortamı

[5] OSB'nin bulunduğu ilin sosyo-ekonomik gelişmişlik durumu

[6] Ülkenin genel ekonomik durumu

16. Aşağıdaki faktörlerden hangisi firmanızın OSB içinde <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Öz kaynak yetersizliği

[2] Kamu ya da özel sektör finansman kuruluşları tarafından sağlanan kredilere erişimde yaşanan problemler

17. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] OSB'nin pazara uzak olması

[2] OSB'nin alt yapısının yetersiz olması

[3] OSB'nin ulaşım merkezleri (hava yolu, karayolu vb)'ne uzak olması

[4] OSB'de atık su arıtma tesisinin olmaması

18. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Özellikle teşvik ve vergi mevzuatlarının sık sık değişmesi

[2] Avrupa Birliği mevzuatına uyum çalışmaları

[3] Sınai mülkiyet haklarının yeterince güvence altına alınamamış olması

19. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Ülkenin genel siyasi ortamı

[2] Terörün neden olduğu güvensizlik ortamı

20. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] İşgücü maliyetleri

[2] Hammadde, ara malı, enerji gibi girdilerin maliyetlerinin yüksek olması

[3] Kalifiye personel eksikliği

21. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Teşviklerin yetersiz oluşu

[2] Üniversite-sanayi işbirliğine yönelik atılan adımların yetersiz olması

22. Firmanızın OSB içinde <u>ilk kurulma kararını</u> verirken, firmanızı <u>olumsuz</u> etkileyen <u>en önemli faktör</u> aşağıdakilerden hangisidir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Ülkenin genel ekonomik durumu
[2] Finansmana erişim
[3] OSB'nin altyapı tamamlanma durumu
[4] OSB'nin pazara olan mesafesi
[5] OSB'nin ulaşım merkezlerine olan mesafesi
[6] Girdi maliyetleri
[7] Nitelikli personel istihdamı
[8] Ülkenin genel siyasi ortamı
[9] OSB'lere ve OSB'lerdeki firmalara sağlanan teşviklerin yeterlilik durumu
[10] OSB'lerde sunulan ofis hizmetleri
[11] Diğer *(LÜTFEN BELİRTİNİZ)*_____

23. OSB içindeki firmanızın <u>son bir yıl içinde</u> en çok kullandığı finansman metodu hangisidir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Öz kaynak

[2] Kamu kuruluşları tarafından sağlanan krediler

[3] Özel sektör kuruluşları tarafından sağlanan krediler

[4] Hibe destekleri

24. Aşağıda belirtilen makroekonomik göstergeler ve faktörlerin <u>şu anki</u> durumu OSB içindeki firmanızın yatırım kararlarını nasıl etkiliyor?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) Ülkenin genel ekonomik durumu	1	2	3	4	5
b) Hükümetin 2023 vizyonu ve hedefleri	1	2	3	4	5
c) Enflasyon oranı	1	2	3	4	5
d) Firmalar arası rekabet ortamı	1	2	3	4	5
e) Kişi başına düşen milli gelir	1	2	3	4	5
f) Döviz kurları	1	2	3	4	5
g) Faiz oranları	1	2	3	4	5
h) OSB'nin bulunduğu ilin sosyo-ekonomik gelişmişlik durumu	1	2	3	4	5
i) OSB içindeki ağırlıklı sektörün piyasa hacmi	1	2	3	4	5

25. OSB içinde faaliyet gösteren bir firma olarak 4. sanayi devrimini firmanız açısından nasıl değerlendiriyorsunuz?

[1] Fırsat olarak değerlendiriyorum

[2] Tehdit olarak değerlendiriyorum

[3] Fikrim yok ⟶ *"FİKRİM YOK" İSE 27. SORUYA GEÇİNİZ.*

26. OSB içinde faaliyet gösteren firma olarak 4. sanayi devrimi için hazır olduğunuzu düşünüyor musunuz?

[1] Evet, düşünüyorum

[2] Hayır, düşünmüyorum

[3] Hazırlık çalışmalarımız devam ediyor

27. Aşağıda belirtilen faktörler <u>son bir yıl içinde</u> firmanızı nasıl etkiledi?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) Mevzuatların değişme sıklığı (özellikle teşvik ve vergi mevzuatları)	1	2	3	4	5
b) Avrupa Birliği mevzuatına uyum çalışmaları	1	2	3	4	5

28. <u>Şu anki</u> siyasi ortam OSB içindeki firmanızın yatırım kararlarını nasıl etkiliyor?

[1] Çok olumsuz

[2] Olumsuz

[3] Ne olumlu ne olumsuz

[4] Olumlu

[5] Çok olumlu

29. Bulunduğunuz ilin <u>şu anki</u> güvenlik ortamı OSB içindeki firmanızı nasıl etkiliyor?

[1] Çok olumsuz

[2] Olumsuz

[3] Ne olumlu ne olumsuz

[4] Olumlu

[5] Çok olumlu

30. Aşağıda belirtilen faktörlerin <u>şu anki</u> durumu firmanızı ne ölçüde etkiliyor?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) İş gücü maliyetleri	1	2	3	4	5
b) Suriye'den Türkiye'ye gelen göçmenler	1	2	3	4	5
c) Siyasi ortam	1	2	3	4	5
d) Bulunduğunuz ilin güvenlik ortamı	1	2	3	4	5

31. OSB içinde yer alan bir firma olarak, aşağıdakilerden hangisi firmanız açısından daha avantajlıdır?
LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[1] OSB dışında yatırım yapmak daha avantajlı

[2] OSB içinde yatırım yapmak daha avantajlı

32. Üretim aşamasına geçmiş bir firma olarak şu an firmanızı olumlu etkileyen en önemli faktör aşağıdakilerden hangisidir?

LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[1] Ülkenin genel ekonomik durumu
[2] Finansmana erişim
[3] OSB'nin altyapı tamamlanma durumu
[4] OSB'nin pazara olan mesafesi
[5] OSB'nin ulaşım merkezlerine olan mesafesi
[6] Girdi maliyetleri
[7] Nitelikli personel istihdamı
[8] Ülkenin genel siyasi ortamı
[9] OSB'lere ve OSB'lerdeki firmalara sağlanan teşviklerin yeterlilik durumu
[10] OSB'lerde sunulan ofis hizmetleri
[11] Diğer *(LÜTFEN BELİRTİNİZ)_____*

33. Aşağıda belirtilen faktörler firmanızı ne ölçüde etkiliyor?

Faktörler	Ne Olumlu Ne Olumsuz	Olumsuz	Olumsuz	Son Derece Olumsuz
a) Hammadde, ara malı, enerji gibi girdilerin maliyetlerinin yüksek olması	1	2	3	4
b) Kalifiye personel eksikliği	1	2	3	4

34. Bürokratik iş ve işlemler yatırım kararlarınızı olumsuz etkiliyor mu?

[1] Evet ➡ *"EVET" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

[2] Hayır ➡ *"HAYIR" İSE 36. SORUYA GEÇİNİZ.*

35. Bürokratik iş ve işlemlerde aşağıda belirtilen faktörlerden hangisinin yatırım kararlarınız üzerindeki olumsuz etkisi diğerine göre daha fazladır?

LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[1] Bürokratik iş ve işlemlerin yavaş işlemesi

[2] Bürokratik iş ve işlemlerde istenen bilgi ve belgelerin oldukça fazla olması

36. Üretim aşamasına geçmiş bir firma olarak <u>şu an</u> firmanızı <u>olumsuz</u> etkileyen en önemli faktör aşağıdakilerden hangisidir?

LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[1] Ülkenin genel ekonomik durumu
[2] Finansmana erişim
[3] OSB'nin altyapı tamamlanma durumu
[4] OSB'nin pazara olan mesafesi
[5] OSB'nin ulaşım merkezlerine olan mesafesi
[6] Girdi maliyetleri
[7] Nitelikli personel istihdamı
[8] Ülkenin genel siyasi ortamı
[9] OSB'lere ve OSB'lerdeki firmalara sağlanan teşviklerin yeterlilik durumu
[10] OSB'lerde sunulan ofis hizmetleri
[11] Diğer *(LÜTFEN BELİRTİNİZ)*_____

Anketimize katıldığınız için teşekkür ederiz.

APPENDIX H

INTRODUCTION PAGE OF WEB QUESTIONNAIRE, STAGE 1

1. Aşama Yatırımın Önündeki Engeller Anketi

* Gerekli

Lütfen yazımızla veya elektronik postayla firmanız adına gönderilen 4 haneli kodu giriniz. *

Yanıtınız

SONRAKI   Sayfa 1 / 22

Google Formlar üzerinden asla şifre göndermeyin.

APPENDIX H

FIRST PAGE OF WEB QUESTIONNAIRE, STAGE 1

GÖNÜLLÜ KATILIM FORMU

Sayın katılımcı,

Bu anket, organize sanayi bölgelerinde (OSB) üretimde bulunan firmaların karşılaştığı yatırım engellerini anlamak amacıyla **iki aşamalı** olarak yapılan araştırmanın **birinci aşama anketidir.**

Bu araştırma için Sanayi ve Teknoloji Bakanlığı Sanayi Bölgeleri Genel Müdürlüğünden ve Hacettepe Üniversitesi Etik Komisyonundan gerekli izinler alınmıştır. Anket, Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri Bilim Uzmanlığı Programındaki bir tez kapsamında uygulanmaktadır.

Anket 36 soru içermektedir ve cevaplama süresi yaklaşık 15 dakikadır. Cevaplarınız OSB'lerdeki yatırım engelleri hakkında daha detaylı bilgi edinmemize ve Sanayi ve Teknoloji Bakanlığının kanıta dayalı politika geliştirmesine önemli bir katkı sağlayacaktır. Bütün cevaplar gizli olup, sizlerden elde edilen cevaplar araştırmanın amacı dışında kullanılmayacaktır. Araştırmaya katılım gönüllü olup, çalışmanın herhangi bir bölümünde yanıtlamayı bırakabilirsiniz. Bu durum size hiç bir sorumluluk getirmeyecektir. Araştırma ile ilgili sorularınız için aşağıda iletişim bilgileri yazılı kişilerle iletişime geçebilirsiniz.

Cevaplarınızın bize ulaşabilmesi için **cevaplandıktan sonra gönder butonuna** tıklanması gerekmektedir. Aksi takdirde, cevaplarınız değerlendirmeye alınamayacaktır.

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*

○ Kabul Ediyorum

○ Kabul Etmiyorum

Araştırmacı

Adı-Soyadı: Sanayi ve Teknoloji Uzmanı Tevfik Bulut

Adres: T.C. Sanayi ve Teknoloji Bakanlığı, Çankaya, Ankara

Telefonu: 0 312 201 58 89

E-posta: tevfik.bulut@sanayi.gov.tr

Sorumlu Araştırmacı

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Adres: Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Beytepe, Ankara

Telefonu: 0 312 297 73 67

E-posta: tadali@hacettepe.edu.tr

GERİ   SONRAKİ   Sayfa 2 / 22

APPENDIX I

MAIL QUESTIONNAIRE, STAGE 2

GÖNÜLLÜ KATILIM FORMU

Sayın katılımcı,

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Cevaplarınızın bize ulaşabilmesi için anketi bitirdikten sonra üzerinde firma ismi olmaksızın zarfı kapatarak **OSB yönetimine** teslim etmeyi lütfen unutmayınız.

Firmanızı temsil etme konusunda yetkilendirildiyseniz ve araştırmaya katılmayı kabul ediyorsanız lütfen aşağıdaki "Kabul ediyorum" kutucuğunu işaretleyerek (X) anketimizi cevaplamaya başlayınız.

☐ **Kabul ediyorum**

☐ **Kabul etmiyorum**

Anket Doldurma Tarihi

Gün		Ay		Yıl			
				2	0	1	8

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DEMOGRAFİK ARKA PLAN

LÜTFEN YANITLARINIZI <u>DAİRE İÇİNE</u> ALINIZ.

1. Bir önceki anketimizi siz mi cevapladınız?

[1] Evet ➝ *"EVET" İSE 8. SORUYA GEÇİNİZ.*

[2] Hayır ➝ *"HAYIR" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

2. Cinsiyetiniz nedir?

[3] Erkek

[4] Kadın

3. Tamamladığınız yaşınız kaçtır?

LÜTFEN HER BİR KUTUCUĞA BİR RAKAM GELECEK ŞEKİLDE, <u>BİTİRDİĞİNİZ</u> YAŞI GİRİNİZ.

☐☐

4. Tamamladığınız eğitim düzeyi nedir?

8 YILLIK İLKÖĞRETİM MEZUNUYSANIZ LÜTFEN <u>ORTAOKULU</u> İŞARETLEYİN.

[9] Herhangi bir okuldan mezun değil

[10]İlkokul

[11]Ortaokul

[12]Lise

[13]Ön Lisans

[14]Lisans

[15]Yüksek Lisans

[16]Doktora

5. OSB içindeki firmanızda kaç yıldır çalışıyorsunuz?

LÜTFEN HER BİR KUTUCUĞA BİR RAKAM GİRİNİZ. EĞER 1 YILDAN AZ ÇALIŞMIŞSANIZ İLK KUTUCUĞA 0, İKİNCİ KUTUCUĞA 1 RAKAMINI GİRİNİZ.

☐☐

6. OSB içindeki firmanızda şu anki pozisyonunuz nedir?

FİRMANIZDA BİRDEN FAZLA POZİSYONDA ÇALIŞIYORSANIZ BİRDEN FAZLA SEÇENEĞİ İŞARETLEYEBİLİRSİNİZ.

[N] Firma sahibi

[O] Firma ortağı

[P] Firma müdürü

[Q] Firma müdür yardımcısı

[R] Yönetim kurulu başkanı veya başkan yardımcısı

[S] Yönetim kurulu üyesi

[T] Genel müdür veya genel müdür yardımcısı

[U] İşletme veya tesis müdürü

[V] Koordinatör

[W] AR-GE müdürü

[X] İnsan kaynakları müdürü

[Y] Muhasebe, finans, satın alma veya mali işler müdürü

[Z] Diğer *(LÜTFEN BELİRTİNİZ)*

_____

7. OSB içindeki firmanızda bu pozisyonda kaç yıldır çalışıyorsunuz?

LÜTFEN HER BİR KUTUCUĞA BİR RAKAM GİRİNİZ. EĞER 1 YILDAN AZ ÇALIŞMIŞSANIZ İLK KUTUCUĞA 0, İKİNCİ KUTUCUĞA 1 RAKAMINI GİRİNİZ.

KURULUŞ AŞAMASI

8. OSB içindeki firmanızın ilk kuruluş aşamasında bulundunuz mu?

[3] Evet ➡ *"EVET" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

[4] Hayır ➡ *"HAYIR" İSE 19. SORUYA GEÇİNİZ.*

9. Aşağıda belirtilen faktörler firmanızın OSB'deki ilk kurulma kararını nasıl etkiledi?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) OSB'nizin pazara olan mesafesi	1	2	3	4	5
b) OSB'nizin alt yapı tamamlanma durumu	1	2	3	4	5
c) OSB'nizin ulaşım merkezleri (hava yolu, karayolu vb.)'ne olan mesafesi	1	2	3	4	5

10. Firmanızın OSB içinde ilk kurulma kararını verirken, firmanızı olumlu etkileyen en önemli faktör aşağıdakilerden hangisidir?

LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[12] Ülkenin genel ekonomik durumu

[13] Finansmana erişim

[14] OSB'nin altyapı tamamlanma durumu

[15] OSB'nin pazara olan mesafesi

[16] OSB'nin ulaşım merkezlerine olan mesafesi

[17] Girdi maliyetleri

[18] Nitelikli personel istihdamı

[19] Ülkenin genel siyasi ortamı

[20] OSB'lere ve OSB'lerdeki firmalara sağlanan teşviklerin yeterlilik durumu

[21] OSB'lerde sunulan ofis hizmetleri

[22] Diğer *(LÜTFEN BELİRTİNİZ)*_____

11. İlk kuruluş aşamasında, firmanızın bulunduğu OSB'de atık su arıtma tesisi var mıydı?

[1] Vardı ➡ *"VARDI" İSE 13. SORUYA GEÇİNİZ.*

[2] Yoktu ➡ *"YOKTU" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

12. OSB'de atık su arıtma tesisinin olmayışı OSB'deki <u>ilk kuruluş aşamasındaki</u> firmanızın yatırım kararını nasıl etkiledi?

[1] Ne Olumlu Ne Olumsuz

[2] Olumsuz

[3] Çok Olumsuz

[4] Son Derece Olumsuz

BU BÖLÜMDE, SİZLERE YATIRIMI <u>OLUMSUZ</u> ETKİLEYEN FAKTÖRLERİN HANGİLERİNİN ÖNE ÇIKTIĞINI ANLAMAYA DAİR SORULAR YÖNELTİLECEKTİR.

13. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?
LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[4] Özellikle teşvik ve vergi mevzuatlarının sık sık değişmesi

[5] Avrupa Birliği mevzuatına uyum çalışmaları

[6] Sınai mülkiyet haklarının yeterince güvence altına alınamamış olması

14. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?
LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[4] İşgücü maliyetleri

[5] Hammadde, ara malı, enerji gibi girdilerin maliyetlerinin yüksek olması

[6] Kalifiye personel eksikliği

15. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?
LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[3] Öz kaynak yetersizliği

[4] Kamu ya da özel sektör finansman kuruluşları tarafından sağlanan kredilere erişimde yaşanan problemler

16. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki <u>ilk kurulma kararını</u> daha olumsuz etkilemiştir?
LÜTFEN <u>SADECE BİR SEÇENEK</u> İŞARETLEYİNİZ.

[5] OSB'nin pazara uzak olması

[6] OSB'nin alt yapısının yetersiz olması

[7] OSB'nin ulaşım merkezleri (hava yolu, karayolu vb)'ne uzak olması

[8] OSB'de atık su arıtma tesisinin olmaması

17. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki ilk kurulma kararını daha olumsuz etkilemiştir?

LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[3] Ülkenin genel siyasi ortamı

[4] Terörün neden olduğu güvensizlik ortamı

18. Aşağıdaki faktörlerden hangisi firmanızın OSB içindeki ilk kurulma kararını daha olumsuz etkilemiştir?

LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[7] Enflasyon oranı

[8] Faiz oranları

[9] Döviz kurları

[10]Firmalar arası rekabet ortamı

[11]OSB'nin bulunduğu ilin sosyo-ekonomik gelişmişlik durumu

[12]Ülkenin genel ekonomik durumu

19. Firmanızın bulunduğu OSB'de <u>şu an</u> atık su arıtma tesisi var mı?

[1] Var ⟶ *"VAR" İSE 21. SORUYA GEÇİNİZ.*

[2] Yok ⟶ *"YOK" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

20. OSB'de atık su arıtma tesisinin olmayışı üretim aşamasına geçmiş firmanızı nasıl etkiliyor?

[1] Ne Olumlu Ne Olumsuz

[2] Olumsuz

[3] Çok Olumsuz

[4] Son Derece Olumsuz

21. Aşağıda belirtilen makroekonomik göstergeler ve faktörlerin <u>şu anki</u> durumu OSB içindeki firmanızın yatırım kararlarını nasıl etkiliyor?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) Ülkenin genel ekonomik durumu	1	2	3	4	5
b) Hükümetin 2023 vizyonu ve hedefleri	1	2	3	4	5
c) Enflasyon oranı	1	2	3	4	5
d) Firmalar arası rekabet ortamı	1	2	3	4	5
e) Kişi başına düşen milli gelir	1	2	3	4	5
f) Döviz kurları	1	2	3	4	5
g) Faiz oranları	1	2	3	4	5
h) OSB'nin bulunduğu ilin sosyo-ekonomik gelişmişlik durumu	1	2	3	4	5
i) OSB içindeki ağırlıklı sektörün piyasa hacmi	1	2	3	4	5

22. <u>Son 1 yıl içinde</u> firmanız adına patent, faydalı model ve endüstriyel tasarım gibi tescil edilmiş bir sınai mülkiyet hakkı var mı?

[1] Evet ⟶ *"EVET" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

[2] Hayır ⟶ *"HAYIR" İSE 25. SORUYA GEÇİNİZ.*

23. Aşağıda adı geçen sınai mülkiyet haklarından hangisi ya da hangileri firmanız adına tescil edildi?

BU SORUDA <u>BİRDEN FAZLA SEÇENEK</u> İŞARETLEYEBİLİRSİNİZ.

[A] Patent

[B] Faydalı model

[C] Endüstriyel tasarım

[D] Coğrafi işaretler

[E] Entegre devrelerin topografyaları

24. Sınai mülkiyet haklarının yeterince güvence altına alındığını düşünüyor musunuz?

[1] Evet

[2] Hayır

25. <u>Son 1 yıl içinde</u>, firmanızın bürokratik iş ve işlemlerinde talep edilen bilgi ve belgelerin miktarı ne kadardır?

[1] Çok Fazla

[2] Fazla

[3] Yeterli

[4] Az

[5] Çok Az

26. Bürokratik iş ve işlemlerin artan bir şekilde elektronik ortamda yapılıyor olması firmanızı nasıl etkiledi?

[1] Çok Olumsuz

[2] Olumsuz

[3] Ne Olumlu Ne Olumsuz

[4] Olumlu

[5] Çok Olumlu

27. Firmanızın karşılaştığı bürokratik işlemlerin tamamlanma süresini nasıl değerlendirirsiniz?

[1] Çok Uzun

[2] Uzun

[3] Makul Ölçüde

[4] Kısa

[5] Çok Kısa

ÜRETİM AŞAMASI

28. Aşağıda belirtilen faktörler <u>son bir yıl içinde</u> firmanızın yatırım kararlarını nasıl etkiledi?

Faktörler	Çok Olumsuz	Olumsuz	Ne Olumlu Ne Olumsuz	Olumlu	Çok Olumlu
a) Mevzuatların değişme sıklığı (özellikle teşvik ve vergi mevzuatları)	1	2	3	4	5
b) Avrupa Birliği mevzuatına uyum çalışmaları	1	2	3	4	5

29. OSB içindeki firmanıza sağlanan teşviklerin yeterli olduğunu düşünüyor musunuz?

[1] Evet

[2] Hayır

30. OSB içindeki firmanız <u>2017 yılı içerisinde</u> yatırım teşvik belgesi aldı mı?

[1] Evet

[2] Hayır

31. OSB içindeki firmanız üniversite-sanayi işbirliği programı içinde yer aldı mı?

[1] Evet ➡ *"EVET" İSE BİR SONRAKİ SORUYA GEÇİNİZ.*

[2] Hayır ➡ *"HAYIR" İSE 34. SORUYA GEÇİNİZ.*

32. Üniversite-sanayi işbirliği programı firmanızı nasıl etkiledi?

[1] Ne Olumlu Ne Olumsuz

[2] Olumlu

[3] Çok Olumlu

[4] Son Derece Olumlu

33. Üniversite-sanayi işbirliğine yönelik atılan adımları yeterli buluyor musunuz?

[1] Hayır, yeterli bulmuyorum

[2] Evet, yeterli buluyorum

34. Üretim aşamasına geçmiş bir firma olarak şu an firmanızı olumlu etkileyen en önemli faktör aşağıdakilerden hangisidir?

LÜTFEN SADECE BİR SEÇENEK İŞARETLEYİNİZ.

[1] Ülkenin genel ekonomik durumu

[2] Finansmana erişim

[3] OSB'nin altyapı tamamlanma durumu

[4] OSB'nin pazara olan mesafesi

[5] OSB'nin ulaşım merkezlerine olan mesafesi

[6] Girdi maliyetleri

[7] Nitelikli personel istihdamı

[8] Ülkenin genel siyasi ortamı

[9] OSB'lere ve OSB'lerdeki firmalara sağlanan teşviklerin yeterlilik durumu

[10] OSB'lerde sunulan ofis hizmetleri

[11] Diğer *(LÜTFEN BELİRTİNİZ)*_____

Anketimize katıldığınız için teşekkür ederiz.

APPENDIX I

INTRODUCTION PAGE OF WEB QUESTIONNAIRE, STAGE 2

2. Aşama Yatırımın Önündeki Engeller Anketi

* Gerekli

Lütfen yazımızla veya elektronik postayla firmanız adına gönderilen 4 haneli kodu giriniz. *

Yanıtınız

SONRAKI   Sayfa 1 / 19

Google Formlar üzerinden asla şifre göndermeyin.

APPENDIX I

FIRST PAGE OF WEB QUESTIONNAIRE, STAGE 2

GÖNÜLLÜ KATILIM FORMU

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○ Kabul Ediyorum

○ Kabul Etmiyorum

Araştırmacı

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GERI   SONRAKI   Sayfa 2 / 19

APPENDIX J

RESPONDENTS BY OCCUPATIONAL POSITION, STAGE 1

Current position of the respondent on behalf of the company in OIZ	n	%
Board member	9	1.06
Board member;General manager or assistant general manager	1	0.12
Board member;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	3	0.35
Business or plant manager	31	3.66
Business or plant manager;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.12
Chairman or vice chairman of the Board	10	1.18
Chairman or vice chairman of the Board;Board member;Quality, R & D, occupational safety directors or directorate staff	1	0.12
Company manager or deputy director	64	7.56
Company manager or deputy director;Business or plant manager;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.12
Company manager or deputy director;General manager or assistant general manager	1	0.12
Company manager or deputy director;Quality, R & D, occupational safety directors or directorate staff	1	0.12
Company manager or deputy director;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	4	0.47
Company owner or partner	278	32.82
Company owner or partner;Board member	5	0.59
Company owner or partner;Board member;General manager or assistant general manager	1	0.12
Company owner or partner;Board member;Import, export, marketing managers or directorate personnel	1	0.12
Company owner or partner;Board member;Quality, R & D, occupational safety directors or directorate staff	1	0.12
Company owner or partner;Business or plant manager	3	0.35
Company owner or partner;Chairman or vice chairman of the Board	22	2.60
Company owner or partner;Chairman or vice chairman of the Board;General manager or assistant general manager	2	0.24
Company owner or partner;Chairman or vice chairman of the Board;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.12
Company owner or partner;Company manager or deputy director	30	3.54
Company owner or partner;Company manager or deputy director;Board member	2	0.24
Company owner or partner;Company manager or deputy director;Board member;Business or plant manager;Human resources manager or directorate staff	1	0.12
Company owner or partner;Company manager or deputy director;Board member;General manager or assistant general manager	1	0.12
Company owner or partner;Company manager or deputy director;Business or plant manager;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.12
Company owner or partner;Company manager or deputy director;Chairman or vice chairman of the Board	2	0.24
Company owner or partner;Company manager or deputy director;Chairman or vice chairman of the Board;Board member	1	0.12
Company owner or partner;Company manager or deputy director;Chairman or vice chairman of the Board;Board member;General manager or assistant general manager	1	0.12

Current position of the respondent on behalf of the company in OIZ	n	%
Company owner or partner;Company manager or deputy director;Chairman or vice chairman of the Board;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.12
Company owner or partner;Company manager or deputy director;General manager or assistant general manager	1	0.12
Company owner or partner;Company manager or deputy director;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	4	0.47
Company owner or partner;General manager or assistant general manager	20	2.36
Company owner or partner;General manager or assistant general manager;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.12
Company owner or partner;Quality, R & D, occupational safety directors or directorate staff	3	0.35
Company owner or partner;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	9	1.06
General manager or assistant general manager	39	4.60
General manager or assistant general manager;Business or plant manager;Quality, R & D, occupational safety directors or directorate staff	1	0.12
Human resources manager or directorate staff	18	2.13
Human resources manager or directorate staff;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	5	0.59
Import, export, marketing managers or directorate personnel	7	0.83
Quality, R & D, occupational safety directors or directorate staff	16	1.89
Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	238	28.10
Staff of accounting, finance, administrative, financial affairs, IT managers or directorates;Quality, R & D, occupational safety directors or directorate staff	1	0.12
Missing	3	0.35
Total	**847**	**100.00**

RESPONDENTS BY OCCUPATIONAL POSITION, STAGE 2

Current position of the respondent on behalf of the company in OIZ	n	%
Board member;Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	1	0.29
Business or plant manager	1	0.29
Company manager or deputy director	6	1.75
Company owner or partner	25	7.29
Company owner or partner;Chairman or vice chairman of the Board	1	0.29
Company owner or partner;Company manager or deputy director	4	1.17
General manager or assistant general manager	2	0.58
Human resources manager or directorate staff	2	0.58
Import, export, marketing managers or directorate personnel	2	0.58
*Missing and system missing	278	81.05
Quality, R & D, occupational safety directors or directorate staff	3	0.87
Staff of accounting, finance, administrative, financial affairs, IT managers or directorates	18	5.25
Total	**343**	**100.00**

*System missing: This question was skipped whenever the first survey was filled out by the same respondent.

RESPONSE RATES (RRS) BY SURVEY MODE AND SURVEY STAGE

Stage	Mode	RR1	RR2	RR3	RR4	RR5	RR6
Stage 1	Web	47.7	47.7	49.8	49.8	83.7	83.7
	Mail	40.7	40.7	42.6	42.6	81.3	81.3
Stage 2	Web	42.4	42.4	44.1	44.1	77.9	77.9
	Mail	30.7	30.7	33.0	33.0	75.0	75.0

RESPONSE RATES (RRS) BY SURVEY MODE IN THE CONTEXT OF FIRMS SELECTED TO THE 2ND STAGE OF THE SURVEY, STAGE 1

Mode	RR1	RR2	RR3	RR4	RR5	RR6
Mail	41.8	41.8	43.2	43.2	83.5	83.5
Web	49.1	49.1	51.1	51.1	83.7	83.7

APPENDIX K

ITEM-BASED DESCRIPTIVE STATISTICS OF RESPONSE CATEGORIES BY SURVEY MODE, STAGE 1

Variable		Mail						Web					
		Choices						Choices					
		1	2	3	4	5	Total	1	2	3	4	5	Total
S1V13a	n	0	19	73	78	25	195	14	32	98	129	39	312
	%	0.0	9.7	37.4	40	12.8	100	4.5	10.3	31.4	41.3	12.5	100
S1V13b	n	16	26	53	68	31	194	30	47	66	137	32	312
	%	8.2	13.4	27.3	35.1	16	100	9.6	15.1	21.2	43.9	10.3	100
S1V13c	n	7	21	65	67	34	194	21	41	74	143	33	312
	%	3.6	10.8	33.5	34.5	17.5	100	6.7	13.1	23.7	45.8	10.6	100
S1V24a	n	99	125	47	9	6	286	165	249	86	36	2	538
	%	34.6	43.7	16.4	3.1	2.1	100	30.7	46.3	16	6.7	0.4	100
S1V24b	n	16	21	133	79	25	274	24	67	230	176	41	538
	%	5.8	7.7	48.5	28.8	9.1	100	4.5	12.5	42.8	32.7	7.6	100
S1V24c	n	129	110	34	7	1	281	210	260	54	11	3	538
	%	45.9	39.1	12.1	2.5	0.4	100	39	48.3	10	2	0.6	100
S1V24d	n	31	90	136	22	3	282	107	179	198	51	3	538
	%	11	31.9	48.2	7.8	1.1	100	19.9	33.3	36.8	9.5	0.6	100
S1V24e	n	34	89	138	15	2	278	83	195	220	38	2	538
	%	12.2	32	49.6	5.4	0.7	100	15.4	36.2	40.9	7.1	0.4	100
S1V24f	n	158	87	21	10	7	283	297	173	41	23	4	538
	%	55.8	30.7	7.4	3.5	2.5	100	55.2	32.2	7.6	4.3	0.7	100
S1V24g	n	185	69	25	0	5	284	346	147	34	7	4	538
	%	65.1	24.3	8.8	0	1.8	100	64.3	27.3	6.3	1.3	0.7	100
S1V24h	n	13	40	143	65	18	279	54	84	244	135	21	538
	%	4.7	14.3	51.3	23.3	6.5	100	10	15.6	45.4	25.1	3.9	100
S1V24i	n	11	19	185	51	11	277	37	77	284	126	14	538
	%	4	6.9	66.8	18.4	4	100	6.9	14.3	52.8	23.4	2.6	100
S1V27a	n	45	117	99	28	6	295	61	216	204	52	5	538
	%	15.3	39.7	33.6	9.5	2	100	11.3	40.1	37.9	9.7	0.9	100
S1V27b	n	17	45	173	38	5	278	26	104	343	59	6	538
	%	6.1	16.2	62.2	13.7	1.8	100	4.8	19.3	63.8	11	1.1	100

ITEM-BASED DESCRIPTIVE STATISTICS OF RESPONSE CATEGORIES BY SURVEY MODE, STAGE 2

Variable				Mode									
		Mail						Web					
		Choices						Choices					
		1	2	3	4	5	Total	1	2	3	4	5	Total
S2V9a	n	1	6	18	33	4	62	6	8	46	61	24	145
	%	1.6	9.7	29.0	53.2	6.5	100.0	4.1	5.5	31.7	42.1	16.6	100.0
S2V9b	n	1	10	17	25	12	65	11	17	30	68	19	145
	%	1.5	15.4	26.2	38.5	18.5	100.0	7.6	11.7	20.7	46.9	13.1	100.0
S2V9c	n	3	9	9	36	6	63	5	16	39	64	21	145
	%	4.8	14.3	14.3	57.1	9.5	100.0	3.4	11.0	26.9	44.1	14.5	100.0
S2V21a	n	29	49	16	6	3	103	61	119	39	12	1	232
	%	28.2	47.6	15.5	5.8	2.9	100.0	26.3	51.3	16.8	5.2	0.4	100.0
S2V21b	n	6	6	43	36	9	100	10	25	102	76	19	232
	%	6.0	6.0	43.0	36.0	9.0	100.0	4.3	10.8	44.0	32.8	8.2	100.0
S2V21c	n	30	56	10	3	3	102	83	122	23	3	1	232
	%	29.4	54.9	9.8	2.9	2.9	100.0	35.8	52.6	9.9	1.3	0.4	100.0
S2V21d	n	9	32	51	10		102	33	95	87	16	1	232
	%	8.8	31.4	50.0	9.8	0.0	100.0	14.2	40.9	37.5	6.9	0.4	100.0
S2V21e	n	13	36	40	7	2	98	33	102	85	10	2	232
	%	13.3	36.7	40.8	7.1	2.0	100.0	14.2	44.0	36.6	4.3	0.9	100.0
S2V21f	n	41	44	9	5	3	102	106	98	18	9	1	232
	%	40.2	43.1	8.8	4.9	2.9	100.0	45.7	42.2	7.8	3.9	0.4	100.0
S2V21g	n	55	38	5	3	3	104	128	87	14	2	1	232
	%	52.9	36.5	4.8	2.9	2.9	100.0	55.2	37.5	6.0	0.9	0.4	100.0
S2V21h	n	6	16	56	19	4	101	12	43	114	50	13	232
	%	5.9	15.8	55.4	18.8	4.0	100.0	5.2	18.5	49.1	21.6	5.6	100.0
S2V21i	n	4	14	56	23	3	100	16	24	137	46	9	232
	%	4.0	14.0	56.0	23.0	3.0	100.0	6.9	10.3	59.1	19.8	3.9	100.0
S2V28a	n	12	48	35	9	1	105	29	99	87	15	2	232
	%	11.4	45.7	33.3	8.6	1.0	100.0	12.5	42.7	37.5	6.5	0.9	100.0
S2V28b	n	4	20	63	9	2	98	20	43	139	28	2	232
	%	4.1	20.4	64.3	9.2	2.0	100.0	8.6	18.5	59.9	12.1	0.9	100.0

APPENDIX L

SCALE STATISTICS BY SURVEY MODE SWITCHES IN ANALYSIS OF INTERNAL CONSISTENCY

SCALE STATISTICS BY MAIL-MAIL MODE SWITCH

Variable	n	Sum of item variances	Mean	SD	Variance	α
OIZ's distance from the market	21	1.40	7.00	1.34	1.80	0.45
Infrastructure completion status of OIZ	19	2.57	7.58	2.12	4.48	0.85
Distance of OIZ to transportation centers	20	2.42	7.00	2.08	4.32	0.88
Current general economic situation of the country	35	1.72	3.71	1.54	2.39	0.56
Government's 2023 vision and targets	34	2.15	6.91	1.98	3.90	0.90
Current inflation rate	34	1.61	3.47	1.40	1.95	0.36
The current competitive environment between companies	34	1.21	5.41	1.40	1.95	0.75
National income per capita	34	1.28	5.21	1.32	1.74	0.54
Current exchange rates	35	2.17	3.94	1.63	2.64	0.36
Current interest rates	35	1.82	3.46	1.44	2.08	0.25
Current socio-economic development status of the province where the OIZ is located	34	1.73	6.24	1.69	2.85	0.79
Current market volume of the predominant sector in OIZ	33	1.02	6.30	1.33	1.78	0.86
Frequency of changes in legislation in a recent year	32	1.77	5.25	1.59	2.52	0.59
Harmonization studies to the legislation of the European Union in a recent year	32	1.01	6.00	1.32	1.74	0.84

SCALE STATISTICS BY WEB-WEB MODE SWITCH

Variable	n	Sum of item variances	Mean	SD	Variance	α
OIZ's distance from the market	48	2.12	6.98	1.83	3.34	0.73
Infrastructure completion status of OIZ	48	2.68	6.92	2.07	4.29	0.75
Distance of OIZ to transportation centers	48	2.16	6.88	1.73	3.01	0.56
Current general economic situation of the country	94	1.28	4.01	1.46	2.12	0.79
Government's 2023 vision and targets	94	1.52	6.43	1.55	2.40	0.73
Current inflation rate	94	0.91	3.47	1.17	1.37	0.67
The current competitive environment between companies	94	1.67	4.71	1.56	2.42	0.62
National income per capita	94	1.36	4.69	1.40	1.96	0.61
Current exchange rates	94	1.26	3.30	1.40	1.95	0.72
Current interest rates	94	1.02	2.96	1.26	1.59	0.72
Current socio-economic development status of the province where the OIZ is located	94	1.75	5.87	1.62	2.61	0.65
Current market volume of the predominant sector in OIZ	94	1.60	5.83	1.50	2.25	0.58
Frequency of changes in legislation in a recent year	94	1.40	4.85	1.43	2.04	0.63
Harmonization studies to the legislation of the European Union in a recent year	94	1.09	5.50	1.28	1.63	0.67

SCALE STATISTICS BY MAIL-WEB MODE SWITCH

Variable	n	Sum of item variances	Mean	SD	Variance	α
OIZ's distance from the market	53	1.41	7.21	1.43	2.05	0.63
Infrastructure completion status of OIZ	54	2.80	6.69	2.14	4.60	0.78
Distance of OIZ to transportation centers	52	2.07	7.00	1.81	3.29	0.74
Current general economic situation of the country	80	1.76	4.04	1.53	2.34	0.50
Government's 2023 vision and targets	80	1.80	6.69	1.73	3.00	0.80
Current inflation rate	79	1.07	3.59	1.21	1.47	0.55
The current competitive environment between companies	80	1.26	5.05	1.35	1.82	0.61
National income per capita	78	1.36	4.96	1.41	1.99	0.63
Current exchange rates	79	1.50	3.49	1.44	2.07	0.55
Current interest rates	79	0.98	3.10	1.14	1.30	0.49
Current socio-economic development status of the province where the OIZ is located	78	1.83	6.45	1.70	2.87	0.72
Current market volume of the predominant sector in OIZ	78	1.24	6.42	1.33	1.78	0.60
Frequency of changes in legislation in a recent year	85	1.64	4.79	1.50	2.26	0.55
Harmonization studies to the legislation of the European Union in a recent year	78	1.26	5.85	1.31	1.72	0.53

SCALE STATISTICS BY WEB-MAIL MODE SWITCH

Variable	n	Sum of item variances	Mean	SD	Variance	α
OIZ's distance from the market	15	1.12	7.47	1.36	1.84	0.78
Infrastructure completion status of OIZ	17	1.42	7.29	1.49	2.22	0.72
Distance of OIZ to transportation centers	16	1.39	7.50	1.27	1.60	0.26
Current general economic situation of the country	28	1.66	4.32	1.28	1.63	-0.03
Government's 2023 vision and targets	27	2.02	6.59	1.76	3.10	0.69
Current inflation rate	28	1.21	3.89	1.32	1.73	0.60
The current competitive environment between companies	28	1.00	5.11	1.29	1.66	0.79
National income per capita	27	1.25	4.78	1.34	1.80	0.61
Current exchange rates	29	1.18	3.24	1.22	1.48	0.40
Current interest rates	29	0.79	2.90	1.11	1.24	0.73
Current socio-economic development status of the province where the OIZ is located	27	1.36	6.22	1.42	2.03	0.66
Current market volume of the predominant sector in OIZ	28	1.09	6.43	1.35	1.81	0.80
Frequency of changes in legislation in a recent year	30	0.84	4.93	1.02	1.03	0.37
Harmonization studies to the legislation of the European Union in a recent year	28	0.62	5.61	0.69	0.47	-0.65

APPENDIX M

STRAIGHTLINING MEASURES BY SURVEY MODE AND SURVEY STAGE

| Variable Set | Web | | | | Mail | | | |
	n	Simple Nondifferentation Method	Standard Deviation of Battery Method	Scale Point Variation Method	n	Simple Nondifferentation Method	Standard Deviation of Battery Method	Scale Point Variation Method
Stage 1								
13th	312	0.34	0.63	0.22	189	0.34	0.55	0.23
24th	538	0.04	0.92	0.04	255	0.01	0.98	0.07
27th	538	0.55	0.43	0.23	276	0.50	0.49	0.25
Stage 2								
9th	145	0.34	0.60	0.26	58	0.28	0.59	0.20
21th	232	0.04	0.87	0.00	92	0.02	0.91	0.06
28th	232	0.54	0.42	0.23	98	0.54	0.41	0.23

APPENDIX N

ANALYSIS VARIABLES OF THE 1ST STAGE QUESTIONNAIRE

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V1	Sex	1	Female	Nominal Categorical	1
		2	Male		
S1V2	Age	1	18-28	Ordinal Categorical	2
		2	29-39		
		3	40-50		
		4	51-61		
		5	62-72		
		6	73-83		
S1V3	Education	1	Primary school	Ordinal Categorical	3
		2	Secondary school		
		3	High school		
		4	Two-year degree		
		5	Bachelor degree		
		6	Master degree		
		7	PhD degree		
S1V4	Number of working years in the firm within OIZ	1	1-4	Ordinal Categorical	4
		2	5-8		
		3	9-12		
		4	13-16		
		5	17-20		
		6	21-24		
		7	25+		
S1V5	Current position of the respondent on behalf of the company in OIZ	1	Company owner or partner	Nominal Categorical	5
		2	Chairman or vice chairman of the Board		
		3	Board member		
		4	Company manager or deputy director		
		5	General manager or assistant general manager		
		6	Business or plant manager		
		7	Import, export, marketing managers or directorate personnel		
		8	Quality, R & D, occupational safety directors or directorate staff		
		9	Staff of accounting, finance, administrative, financial affairs, IT managers or directorates		
		10	Human resources manager or directorate staff		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V6	Number of years that respondent on behalf of the firm in OIZ worked in the current position	1	1-4	Ordinal Categorical	6
		2	5-8		
		3	9-12		
		4	13-16		
		5	17-20		
		6	21-24		
		7	25+		
S1V7	First establishment year in OIZ	1	<1990	Ordinal Categorical	7
		2	1990-1995		
		3	1996-2001		
		4	2002-2007		
		5	2008-2013		
		6	2014+		
S1V8	Year of production stage in OIZ	1	<1990	Ordinal Categorical	8
		2	1990-1995		
		3	1996-2001		
		4	2002-2007		
		5	2008-2013		
		6	2014+		
S1V9	NACE Rev. 2 Sections	1	1-2	Ordinal Categorical	9
		2	5-38		
		3	41-43		
		4	45-56		
		5	59-62		
		6	64		
		7	69-82		
		8	86		
		9	91-96		
S1V10	First establishment stage	1	Yes	Nominal Categorical	10
		2	No		
S1V11	Access to finance	1	Yes	Nominal Categorical	11
		2	No		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V12	Effect of access to finance	1	Neither positive nor negative	Ordinal Categorical	12
		2	Negative		
		3	Very negative		
		4	Extremely negative		
S1V13a	OIZ's distance from the market	1	Very negative	Ordinal Categorical	13a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V13b	Infrastructure completion status of OIZ	1	Very negative	Ordinal Categorical	13b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V13c	Distance of OIZ to transportation centers	1	Very negative	Ordinal Categorical	13c
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V14	The most important factor that positively affects the decision to first establish	1	Land and building costs	Nominal Categorical	14
		2	Coexistence of similar sectors		
		3	Access to finance		
		4	Input costs		
		5	Entrepreneur business idea or social responsibility		
		6	Additional space required		
		7	The establishment of the installed area within the OIZ		
		8	Employment of qualified personnel		
		9	Need to invest in an organized field		
		10	Office services in OIZs		
		11	Incentives provided to OIZs and firms in OIZs		
		12	OIZ's infrastructure completion status		
		13	Distance of OIZ to market		
		14	Distance of OIZ to transportation centers		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
		15	General economic situation of the country		
		16	General political environment of the country		
		17	Domestic or overseas market demand		
S1V15	The dominant factor that negatively affects the decision to first establish	1	Inflation rate	Nominal Categorical	15
		2	Interest rates		
		3	Exchange rates		
		4	Competition between companies		
		5	Socio-economic development situation of the province where the OSB is located		
		6	General economic situation of the country		
S1V16	The dominant factor that negatively affects the decision to first establish	1	Lack of equity capital	Nominal Categorical	16
		2	Problems experienced in access to credit provided by the public or private sector financial institutions		
S1V17	The dominant factor that negatively affects the decision to first establish	1	OIZ located far away from the market	Nominal Categorical	17
		2	Inadequate infrastructure of OIZ		
		3	OIZ being far from transportation centers (airport, highway, etc.)		
		4	Lack of wastewater treatment plant in OIZ		
S1V18	The dominant factor that negatively affects the decision to first establish	1	Especially frequent changes in incentive and tax legislation	Nominal Categorical	18
		2	Harmonization studies with European Union legislation		
		3	Inadequate protection of industrial property rights		
S1V19	The dominant factor that negatively affects the decision to first establish	1	General political environment of the country	Nominal Categorical	19
		2	Insecurity environment caused by terror		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V20	The dominant factor that negatively affects the decision to first establish	1	Labor costs	Nominal Categorical	20
		2	High costs of inputs such as raw materials, intermediate goods and energy		
		3	Lack of qualified personnel		
S1V21	The dominant factor that negatively affects the decision to first establish	1	Inadequate incentives	Nominal Categorical	21
		2	Inadequate steps taken for university-industry cooperation		
S1V22	The most important factor that negatively affects the decision to first establish	1	Land and building costs	Nominal Categorical	22
		2	Coexistence of similar sectors		
		3	Access to finance		
		4	Input costs		
		5	Entrepreneur business idea or social responsibility		
		6	Additional space required		
		7	The establishment of the installed area within the OIZ		
		8	Employment of qualified personnel		
		9	Need to invest in an organized field		
		10	Office services in OIZs		
		11	Incentives provided to OIZs and firms in OIZs		
		12	OIZ's infrastructure completion status		
		13	Distance of OIZ to market		
		14	Distance of OIZ to transportation centers		
		15	General economic situation of the country		
		16	General political environment of the country		
		17	Domestic or overseas market demand		

(CONTINUED)

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V23	The most used method of financing in a recent year	1	Equity capital	Nominal Categorical	23
		2	Loans provided by public institutions		
		3	Loans provided by private sector entities		
		4	Grant support		
S1V24a	Current general economic situation of the country	1	Very negative	Ordinal Categorical	24a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24b	Government's 2023 vision and targets	1	Very negative	Ordinal Categorical	24b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24c	Current inflation rate	1	Very negative	Ordinal Categorical	24c
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24d	The current competitive environment between companies	1	Very negative	Ordinal Categorical	24d
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24e	National income per capita	1	Very negative	Ordinal Categorical	24e
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24f	Current exchange rates	1	Very negative	Ordinal Categorical	24f
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V24g	Current interest rates	1	Very negative	Ordinal Categorical	24g
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24h	Current socio-economic development status of the province where the OIZ is located	1	Very negative	Ordinal Categorical	24h
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V24i	Current market volume of the predominant sector in OIZ	1	Very negative	Ordinal Categorical	24i
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V25	Fourth industrial revolution	1	I consider it an opportunity		25
		2	I regard it as a threat		
		3	I have no idea		
S1V26	Preparatory state of the 4th industrial revolution	1	Yes, I think	Nominal Categorical	26
		2	No, I don't think		
		3	Our preparatory is continuing		
S1V27a	Frequency of changes in legislation in a recent year	1	Very negative	Ordinal Categorical	27a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V27b	Harmonization studies to the legislation of the European Union in a recent year	1	Very negative	Ordinal Categorical	27b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V28	Current political environment	1	Very negative	Ordinal Categorical	28
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V29	Current security environment	1	Very negative	Ordinal Categorical	29
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V30a	Labor costs	1	Very negative	Ordinal Categorical	30a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V30b	Immigrants who came to Turkey from Syria	1	Very negative	Ordinal Categorical	30b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S1V31	Advantage of firm	1	It is more advantageous to invest outside OIZ	Nominal Categorical	31
		2	It is more advantageous to invest in OIZ		
S1V32	The most important factor that affects positively in the production stage	1	Coexistence of similar sectors	Nominal Categorical	32
		2	Access to finance		
		3	Input costs		
		4	Entrepreneur business idea or social responsibility		
		5	The establishment of the installed area within the OIZ		
		6	Employment of qualified personnel		
		7	Need to invest in an organized field		
		8	Office services in OIZs		
		9	Incentives provided to OIZs and firms in OIZs		
		10	OIZ's infrastructure completion status		
		11	Distance of OIZ to market		
		12	Distance of OIZ to transportation centers		
		13	General economic situation of the country		
		14	General political environment of the country		
		15	Domestic or overseas market demand		
		16	No positive factor		

(CONTINUED)

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S1V33a	High costs of inputs such as raw materials, intermediate goods and energy	1	Neither positive nor negative	Ordinal Categorical	33a
		2	Negative		
		3	Very negative		
		4	Extremely negative		
S1V33b	Lack of qualified personnel	1	Neither positive nor negative	Ordinal Categorical	33b
		2	Negative		
		3	Very negative		
		4	Extremely negative		
S1V34	Bureaucracy	1	Yes	Nominal Categorical	34
		2	No		
S1V35	Dominant negative impact of bureaucracy	1	Slow functioning of bureaucratic work and transactions	Nominal Categorical	35
		2	Requesting a large number of information and documents for bureaucratic work and procedures		
S1V36	The most important factor that negatively affects the firm in the production stage	1	Land and building costs	Nominal Categorical	36
		2	Security environment of your province		
		3	Bureaucratic procedures		
		4	Access to finance		
		5	Competition between companies		
		6	Input costs		
		7	Entrepreneur business idea or social responsibility		
		8	Additional space required		
		9	The establishment of the installed area within the OIZ		
		10	Employment of qualified personnel		
		11	Office services in OIZs		
		12	Qualification of incentives provided to OIZs and firms in OIZs		
		13	OIZ's infrastructure completion status		
		14	Distance of OIZ to market		
		15	Distance of OIZ to transportation centers		
		16	General economic situation of the country		
		17	General political environment of the country		

APPENDIX O

ANALYSIS VARIABLES OF THE 2ND STAGE QUESTIONNAIRE

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S2V1	Response status of the same person	1	Yes	Nominal Categorical	1
		2	No		
S2V2	Sex	1	Male	Nominal Categorical	2
		2	Female		
S2V3	Age	1	18-28	Ordinal Categorical	3
		2	29-39		
		3	40-50		
		4	51-61		
		5	62-72		
S2V4	Education	1	Primary school	Ordinal Categorical	4
		2	Secondary school		
		3	High school		
		4	Two-year degree		
		5	Bachelor degree		
		6	Master degree		
		7	PhD degree		
S2V5	Number of working years in the firm within OIZ	1	1-4	Ordinal Categorical	5
		2	5-8		
		3	9-12		
		4	13-16		
		5	17-20		
		6	21-24		
		7	25+		
S2V6	Current position of the respondent on behalf of the company in OIZ	1	Company owner or partner	Nominal Categorical	6
		2	Chairman or vice chairman of the Board		
		3	Board member		
		4	Company manager or deputy director		
		5	General manager or assistant general manager		
		6	Business or plant manager		
		7	Import, export, marketing managers or directorate personnel		
		8	Quality, R & D, occupational safety directors or directorate staff		
		9	Staff of accounting, finance, administrative, financial affairs, IT managers or directorates		
		10	Human resources manager or directorate staff		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S2V7	The number of years that respondent on behalf of the firm in OIZ worked in the current position	1	1-4	Ordinal Categorical	7
		2	5-8		
		3	9-12		
		4	13-16		
		5	17-20		
		6	21-24		
		7	25+		
S2V8	First establishment stage	1	Yes	Nominal Categorical	8
		2	No		
S2V9a	OIZ's distance from the market	1	Very negative	Ordinal Categorical	9a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V9b	Infrastructure completion status of OIZ	1	Very negative	Ordinal Categorical	9b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V9c	Distance of OIZ to transportation centers	1	Very negative	Ordinal Categorical	9c
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V10	The most important factor that positively affects the decision to first establish	1	Land and building costs	Nominal Categorical	10
		2	Coexistence of similar sectors		
		3	Access to finance		
		4	Input costs		
		5	Entrepreneur business idea or social responsibility		
		6	Additional space required		
		7	Employment of qualified personnel		
		8	Office services in OIZs		
		9	Incentives provided to OIZs and firms in OIZs		
		10	OIZ's infrastructure completion status		
		11	Distance of OIZ to market		

(CONTINUED)

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
		12	Distance of OIZ to transportation centers		
		13	General economic situation of the country		
		14	General political environment of the country		
		15	Domestic or overseas market demand		
S2V11	Wastewater treatment plant in In the first establishment stage	1	It was available	Nominal Categorical	11
		2	It was not available		
S2V12	Effect of not having a wastewater treatment plant at the first stage of establishment	1	Neither positive nor negative	Ordinal Categorical	12
		2	Negative		
		3	Very negative		
		4	Extremely negative		
S2V13	The dominant factor that negatively affects the decision to first establish	1	Especially frequent changes in incentive and tax legislation	Nominal Categorical	13
		2	Harmonization studies with European Union legislation		
		3	Inadequate protection of industrial property rights		
S2V14	The dominant factor that negatively affects the decision to first establish	1	Labor costs	Nominal Categorical	14
		2	High costs of inputs such as raw materials, intermediate goods and energy		
		3	Lack of qualified personnel		
S2V15	The dominant factor that negatively affects the decision to first establish	1	Lack of equity capital	Nominal Categorical	15
		2	Problems experienced in access to credit provided by the public or private sector financial institutions		
S2V16	The dominant factor that negatively affects the decision to first establish	1	OIZ located far away from the market	Nominal Categorical	16
		2	Inadequate infrastructure of OIZ		
		3	OIZ being far from transportation centers (airport, highway, etc.)		
		4	Lack of wastewater treatment plant in OIZ		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S2V17	The dominant factor that negatively affects the decision to first establish	1	General political environment of the country		17
		2	Insecurity environment caused by terror		
S2V18	The dominant factor that negatively affects the decision to first establish	1	Inflation rate	Nominal Categorical	18
		2	Interest rates		
		3	Exchange rates		
		4	Competition between companies		
		5	Socio-economic development situation of the province where the OSB is located		
		6	General economic situation of the country		
S2V19	Presence of wastewater treatment plant	1	It is available	Nominal Categorical	19
		2	It is not available		
S2V20	No wastewater treatment plant in the production stage	1	Neither positive nor negative	Ordinal Categorical	20
		2	Negative		
		3	Very negative		
		4	Extremely negative		
S2V21a	Current general economic situation of the country	1	Very negative	Ordinal Categorical	21a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21b	Government's 2023 vision and targets	1	Very negative	Ordinal Categorical	21b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21c	Current inflation rate	1	Very negative	Ordinal Categorical	21c
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21d	The current competitive environment between companies	1	Very negative	Ordinal Categorical	21d
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S2V21e	National income per capita	1	Very negative	Ordinal Categorical	21e
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21f	Current exchange rates	1	Very negative	Ordinal Categorical	21f
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21g	Current interest rates	1	Very negative	Ordinal Categorical	21g
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21h	Current socio-economic development status of the province where the OIZ is located	1	Very negative	Ordinal Categorical	21h
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V21i	Current market volume of the predominant sector in OIZ	1	Very negative	Ordinal Categorical	21i
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V22	Industrial property right in a recent year	1	Yes	Nominal Categorical	22
		2	No		
S2V23	Registered industrial property rights	1	Patent	Nominal Categorical	23
		2	Useful model		
		3	Industrial design		
		4	Geographical indications		
		5	Integrated circuit topographies		
S2V24	Protection of industrial property rights	1	Yes	Nominal Categorical	24
		2	No		
S2V25	Amount of bureaucratic work and transactions in a recent year	1	Very much	Ordinal Categorical	25
		2	Much		
		3	Enough		
		4	Little		
		5	Very little		

Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S2V26	Transfer of bureaucratic work and transactions to electronic centers	1	Very negative	Ordinal Categorical	26
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V27	Duration of bureaucratic proceedings	1	Very long	Ordinal Categorical	27
		2	Long		
		3	Reasonably		
		4	Short		
		5	Very short		
S2V28a	Frequency of changes in legislation in a recent year	1	Very negative	Ordinal Categorical	28a
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V28b	Harmonization studies to the legislation of the European Union in a recent year	1	Very negative	Ordinal Categorical	28b
		2	Negative		
		3	Neither positive nor negative		
		4	Positive		
		5	Very positive		
S2V29	Sufficiency status of incentives	1	Yes	Nominal Categorical	29
		2	No		
S2V30	Investment incentive certificate	1	Yes	Nominal Categorical	30
		2	No		
S2V31	University-industry cooperation program	1	Yes	Nominal Categorical	31
		2	No		
S2V32	Effect of university-industry cooperation program	1	Neither positive nor negative	Ordinal Categorical	32
		2	Positive		
		3	Very positive		
		4	Extremely positive		

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Code of Variable	Variable Label	Category Code	Categories	Type of Variable	Question No
S2V33	Sufficiency status of steps towards university-industry cooperation	1	No, I do not find enough	Nominal Categorical	33
		2	Yes, I find it adequate		
S2V34	The most important factor that affects positively in the production stage	1	Access to finance	Nominal Categorical	34
		2	Input costs		
		3	Entrepreneur business idea or social responsibility		
		4	Employment of qualified personnel		
		5	Office services in OIZs		
		6	Incentives provided to OIZs and firms in OIZs		
		7	OIZ's infrastructure completion status		
		8	Distance of OIZ to market		
		9	Distance of OIZ to transportation centers		
		10	General economic situation of the country		
		11	General political environment of the country		
		12	Domestic or overseas market demand		
		13	No positive factor		