

## ASSESSMENT OF THE ECONOMIC IMPACT OF UNIVERSITIES ON THEIR LOCAL BUSINESSES: THE CASE OF IZMIR UNIVERSITY OF ECONOMICS

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**Abstract:** Universities are continually challenged to streamline their programs and investments to a progressive society. Both students and local businesses rely on universities to provide individual, social and economic impacts on the community. In this paper, an analysis of universities as a source of financial stability and investment within localities is discussed. Focus is placed on the implementation of economic practices between the Izmir University of Economics and the district of Izmir, Balçova. The study employs several descriptive statistics and multiple logistic regression models to analyze a detailed survey of 168 local businesses. The results of this economic impact study shows that students, faculty, staff and university expenditures may have an increased positive effect on the local economy. Local businesses continue to find the university and its community as keys to their financial success. This impact on the local and city economy has a possibility of generating significantly greater returns in the near future.

**Keywords:** Economic Impact; University; College; Higher Education; Local Business; Logistic regression.

### ÜNİVERSİTELERİN YEREL İŞLETMELER ÜZERİNDEKİ EKONOMİK ETKİLERİNİN DEĞERLENDİRİLMESİ: İZMİR EKONOMİ ÜNİVERSİTESİ ÖRNEĞİ

**Öz:** Üniversiteler ve yüksek öğretim kurumları öğrenciler, topluluklar ve bir bütün olarak toplumun ihtiyaçlarına kendi program ve yatırımlarıyla cevap vermeye çalışmaktadırlar. Öğrenciler ve yerel işletmeler ise üniversitelerin topluma olan bireysel, sosyal ve ekonomik etkilerini düzenleyip aktarma rolünü üstlenmişlerdir. Bu çalışma üniversiteleri bölgenin birer finansal istikrar ve yatırım kaynağı düşüncesiyle ele alarak incelemeye çalışmıştır. Bu makalede üniversitelerin olumlu ve olumsuz ekonomik etkileri kalitatif olarak incelenmiş, yoğunluk ve odağı ise 168 yerel işletmeyle yapılan anket çalışmasının çeşitli betimleyici istatistikler ve çoklu lojistik regresyon yöntemi kullanılmasıyla İzmir Ekonomi Üniversitesi ve Balçova ilçesi arasındaki ekonomik etki ve ilişki analizi oluşturmaktadır. Bu ekonomik etki çalışmasının sonuçlarına göre üniversitenin, öğrencilerin ve üniversite çalışanlarının harcamalarının yerel ekonomiye artan bir pozitif etkisi bulunmaktadır. Yerel işletmeler finansal başarılarının sırrını üniversiteler ve üniversite topluluğu olarak görmekte ve bu ekonomik etkinin yakın gelecekte önemli ölçüde yüksek gelir üretmeye devam etme imkanı bulunmaktadır.

**Anahtar Kelimeler:** Ekonomik Etki; Üniversite; Yerel İşletme; Çoklu Lojistik Regresyon.

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## **I. Introduction**

Universities play an important role in the economic development of the cities and districts in which they are located. More than the individual impact and social effects, universities improve productivity, reduce unemployment and increase individual income, which contributes to the country's overall development.

This study consists of five sections. In the first section, the increasing importance in higher education is stressed and impact of universities is classified with a special emphasis on economic aspects. Some examples from local and foreign universities are given in this section. Furthermore, brief information about the Izmir University of Economics is given. In the second section of the study, the minor and major objectives for the research are mentioned. In the third section, the data collection methods and some information about the survey are given. A survey of 168 local small and medium enterprises is examined in order to investigate the direct, indirect and induced impacts of IUE on income change and satisfaction level. The fifth section of the study discusses the results of regression analysis derived from the data.

Three key impacts of universities are economic, social and individual contributions. On the individual scale, an increase in standard of living and job opportunities can result from personal and professional skill building. At social level, universities provide a platform for cultural and communication exchange. They also help to develop global citizens with superior communication skills and increased cultural and political awareness. The economic impacts of universities go beyond community income generation and investment. Universities create jobs, provide housing and improve public transportation. Moreover, universities typically house teaching hospitals that provide health care as an asset that can extend life expectancy and reduce mortality rates.

In addition to staff payments, universities are paying remuneration to a range of individuals and firms to attain several goods or services. Additionally, expenditures of the university students are also an essential income source of the regional economy. All of these university payments and expenditures of students can be described as an indirect income effect. For the purpose of this study, induced income will be classified as money spent on local goods and services. This money is a source from both direct and indirect impacts of the university, which increases employment and overall income within the community.

Several models have been proposed to assess the economic benefits of universities on their localities, such as input-output, cost-benefit analysis and economic based models, but the most predominate model is the multiplier method. This model categorizes expenditures of both students, staff, and analyses whether economic growth results from increased investment given that increased consumption occurs. This study uses backward logistic regression

analysis and examines Izmir University of Economics' direct, indirect and induced impacts on income level of small business units.

*A- About Izmir University of Economics*

It's been already documented that Izmir University of Economics (IUE) is a major economic force in local income and employment creation in Izmir (Sen, 2011). Considerable amount of students, faculty and staff live in Balçova district. A significant direct income is expected to enter into the local economy, assuming that most expenditure take place at place of residence. Another economic impact arises through direct expenditure of the university.

Izmir University of Economics (IUE), which is the first foundation university in Izmir and in Aegean region, was established in 2001 by "Izmir Chamber of Commerce Education and Health Foundation". The University currently has 7 Faculties, 3 Schools, 2 Graduate Schools, and 8 Research Centers. These academic units offer 17 different associate degree programs, 36 different undergraduate programs, 31 different graduate programs, and 6 different PhD programs. The University employs more than 400 full-time academicians to train and give education to more than 6000 students.

## **II. Literature Review**

Higher education institutions are quite essential for both individuals and societies to provide economic and socio-cultural development by increasing productivity, decreasing unemployment, and increasing individual income. Although the primary duty of the universities is to contribute to the personal development and intellectual lifestyle of individuals, the economic impacts of the universities cannot be ignored.

Universities such as IUE utilize economic impact studies to interpret and understand the effect of their income on their local economy. Generally, universities are associated with educational improvement and can also produce research and development opportunities. In addition to which, local communities can be infused by direct and indirect wealth generation of the university (Stokes and Coomes, 1998).

In a study conducted in Arizona State University by Munnich and Nelson (2003), emphasis was placed on the economic success of universities as related to knowledge transfer, innovation, concept generation and research and design.

In order to further examine the long and short-term effects of university expenditures, information can be drawn from previous studies that investigate the universities local purchasing power (Parson and Griffiths, 2003).

While the former study focuses on individual impact and the latter solely on economic opportunities, the National Association of Statue Universities and Land-Grant Colleges (2001) chose to highlight the public policy advantages by conducting an economic impact survey that can provide

substantial evidence to approach local and government officials for investment opportunities and policy changes.

The benefits of the universities can be investigated in three groups:

#### *A- Individual Benefits*

It is a commonly accepted fact that education provides personality developments for individuals, improves fundamental knowledge, skills, provides career and occupation opportunities, and contributes individuals to acquire a respected place in the society.

The higher education gives one the benefit to satisfy a lifetime learning experience, to enhance his or her social status, and to participate in several social/cultural events and extracurricular activities. Further benefits comprise higher lifetime earnings, higher chance of employment, more satisfying work and social environment, longer life, and better health (Bowen, 1997; Leslie and Brinkman, 1988; McPherson, 1993). Especially the benefit of higher lifetime earnings takes significant attention in the literature assuming that a gain in lifetime earnings is one of the most easily observed benefits.

It is also stated that higher education creates an impact on the consumption preferences and pleasures of individuals as well. Consumption preferences such as theater, cinema, sports, arts, and other cultural activities are added to the consumption portfolio of a well-educated individual. The effect of education on future generations are also addressed by emphasizing that the education level of parents is an important factor in determining the level of the education of children (Özaslan et al., 1998).

#### *B- Societal Benefits*

Education is an important factor in determining social duties and tasks based on talent and capacity to increase productivity; hence it plays a vital role in social development (Özaslan et al., 1998). Societal benefits of higher education are estimated to constitute about one half of the total benefits of higher education (McMahon, 2009).

Social benefits of higher education include public benefits that society gains from higher education beyond those benefited by the individual himself/herself. For instance, increased lifetime earnings of individuals that result from higher education attendance lead to greater tax revenues and hence greater savings and investment opportunities (Bloom et al., 2006). Other social benefits of higher education include reduced crime rates, increased community services, social appreciation of diversity, and improved ability to adapt to and use technology (Institute for Higher Education Policy, 1998). Further, higher education can also improve the nation's health, contribute to population planning, and strengthen nation's governance (Bloom et al., 2006).

In a study by Borland et al. (2000), it is argued that the higher the knowledge capacity of the university graduates, the more the knowledge that

would be disseminated to the people around them. Higher education institutes also increases participation to the public economy and increases social mobility. The social and cultural standards constructed by the university improve the social infrastructure which supports the economic harmony.

### *C- Economic Benefits*

Higher education institutions have been accepted as a tool for regional development in many countries, and they have been expanded to the poor and underdeveloped regions of the cities by an expectation of several economic impacts on the region (OECD, 2008). These expectations include: improvements in regional income, economic structure, labor mobility in the region, advances in housing, health facilities, infrastructure, increases in cultural activities, education participation rates, and decreases in migration and child mortality rates (Florax, 1987).

It has also been argued that the universities contribute to economic development of the cities in terms of creating new job opportunities, investments, qualified labor force and production, increases in population and consumption, transfer of technology, research activities, merchandizing, tax and brand value creation, and public service increase (Munnich and Nelson, 2003; Aydemir, 1994).

Erkekoğlu (2000) argues that these contributions that the higher education institutions make two types: static and dynamic. While static contributions appear when the factors of production change quantitatively, then dynamic contributions emerge and they increase the personal wealth with no quantitative change in the production factors.

Static contributions are short term contributions and derive from the expenditures because of the university. Expenditures of universities and university personnel are direct static contributions to regional economy by direct employment as wealth effect caused by university personnel and direct income as effects occurred by the salaries paid to these personnel (Dell et al., 1996; Atik, 1999). Indirect static contributions are growth in income and employment resulting from the sales of non-labor factor owners to the universities (Tuğcu 2004). Individuals, who earn income through direct and indirect employment by the university, spend their income on local products and services. An increase in income and employment that depends on these direct and indirect contributions is called induced static contributions or sometimes Keynesian multiplier effect (Bilginoğlu et al., 2002).

Other economic contributions of the universities are the dynamic contributions, which occurs without significant changes in the amount of factors of production and has a long term benefit for the economy (Tuğcu 2004). Although the scientific theories beneath dynamic contributions are solid and very popular, the scientific research is only conducted in the developed countries, especially in the USA. For instance, the Silicon Valley that founded

by Stanford University has contributed \$50 billion to the local GDP and hosts about 40% of the state population (Rosan, 1999).

There are several methods and techniques that have been used to identify the economic impact of higher education institutions, such as economic and econometric models (Cook, 1970; Booth et al., 1976), input-output model (Bonnwe, 1968; Dorsett et al., 1982), cost-benefit analysis (Hansen et al., 1969), and most commonly used model, Keynesian multiplier method (Brownrigg 1973; Armstrong, 1993), which allows one to investigate the relationship between the higher education institution and economy with respect to components that can be differentiated such as personnel, students and university itself.

### **III. Methodology**

This current study analyzes several aspects of the economic impacts of Izmir University of Economics on local businesses through the use of descriptive statistics and regression methods employing a previous research conducted at the Izmir University of Economics in 2012.

#### *A- Survey Methodology*

In May 2012, University Economic Impact questionnaires were administered by hand to the owners and managers of local businesses. The targeted businesses were located in Balçova and within an approximate ten-kilometer radius of the University. There are only a few medium size business units in Balçova. To keep the sample homogenous and observe the actual effects of IEU on local business, the business questionnaire was administered to only a sample of small business units (SBU). There are about 1500 small business units in 41 different sectors in Balçova district. It would be too costly and lengthy to survey every small business in the district. Hence, a sample of 200 SBUs was randomly selected to ensure a representative sample of location, business type, time status, and residence status. The total number of SBUs who answered the whole questionnaire is 168, making the response rate of the study 84%. However, it should be noted that this sample might not correctly represent Izmir or Turkey since this study is a case study and only assesses the economic impact of a specific university on the local business where it is resided. An extensive representative data is required to properly assess the economic impacts of universities in Izmir or in Turkey.

#### *B- Data Examining Methodology*

Initially, several descriptive statistics are employed in this study. Then, a regression method is utilized to investigate if there is a direct relationship between university and the income level of the SBUs in Balçova in terms of economic impact.

The regression model used in this study is a stepwise backward logistic regression model. This model is used when the response (dependent) variable is

quantitative. It models the relationship between a binary (dummy) and ordinal response variable and one or more explanatory independent variables. In this study, the dependent binary variable is calculated as 1 if the vendor states that the income level of SBU has increased after the foundation of IUE, 0 otherwise. The model is:

$$\text{Logit}(P_i) = \text{natural log(odds)} = \ln\left(\frac{P_i}{1 - P_i}\right) = \alpha + \beta X_i \quad (1)$$

where  $P$  is response probabilities to be modeled, i.e. probability of having an increase in income,  $\alpha$  is intercept parameter (constant),  $\beta$  is coefficients to be estimated, and  $X$  is the vector of explanatory variables which are determined based on backward elimination method. The coefficients of the model are estimated using the maximum-likelihood method.

#### IV. Data Analysis

##### A- Descriptive Statistics

The analysis starts with the key findings derived from the survey and Table 1 summaries the results. A critical finding coming from the survey is the question of whether the small and medium enterprises are satisfied with the foundation of IUE. Out of 168 respondents, 151 of them stated that they are satisfied with the opening of the university.

Table 1: Key Findings Derived from the Survey

		Frequency	Percentage
Satisfied with opening of IEU	Yes	151	89.9
	No	17	10.1
Purpose of opening related to IEU	Yes	153	91.1
	No	12	8.9
Opening in case of inexistence of IEU	Yes	10	5.9
	No	158	94.1

Another critical finding coming from the survey is to determine whether the establishment of the enterprises is related to the opening of IUE. Out of 168 respondents, 91.1% declared that their purpose directly linked to the opening of the university.

Another important result comes from the question that whether they would still start a business if IUE was not present in the community. Out of 168 respondents, 94.1% of them stated that they would not open their enterprises without the opening of IUE.

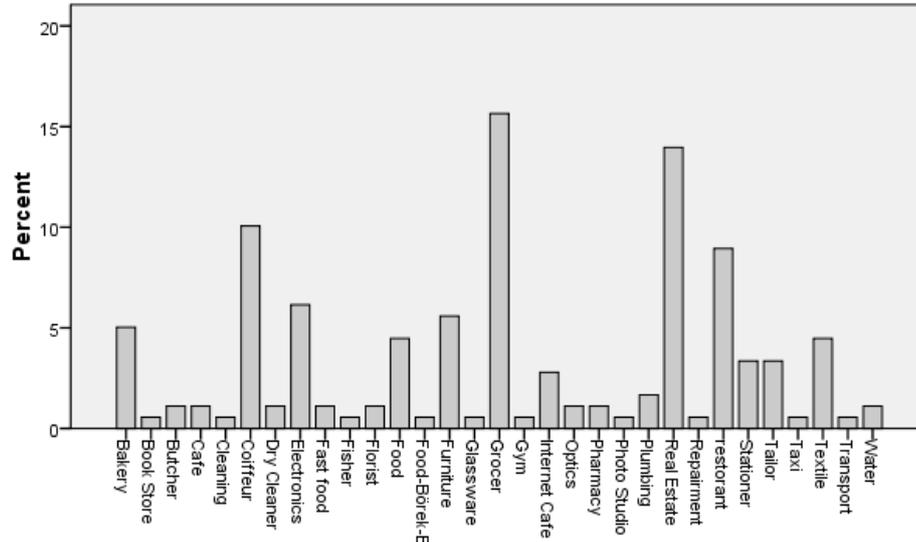


Figure 1: Type of Enterprises in Balcova, İzmir

Figure 1 illustrates that the small and medium enterprises located around the Balcova area are mainly focused on the service sector, which addresses the fundamental needs of both residents and students. Grocers are the most common SMEs and serve as practical alternatives to larger, remotely located retail stores. Real estate offices follow the grocers since university created a demand for accommodation in the region. Other common SMEs include hair salons, restaurants and bakeries, respectively.

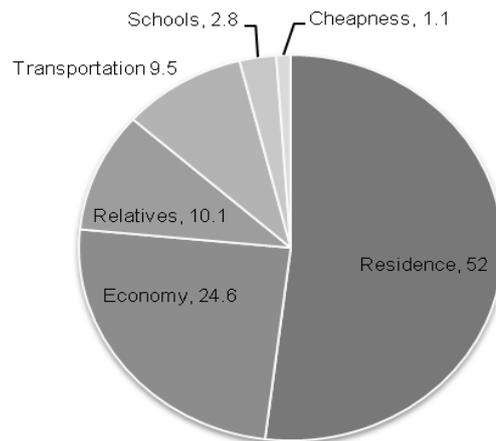


Figure 2: Reasons of Locating Enterprise in Balcova, İzmir

Examining the reasons that the SMEs locate their business near Balcova, it can be seen that there are six main categories. 24.6% of the participants declared that one of the reasons is the economic dynamism of the area. Another 52% of the respondents stated that the main reason of locating their office near Balcova was the proximity to their homes. The other reasons are having relatives, easy transportation, schools, and inexpensiveness with percentages of 10.1%, 9.5%, 2.8%, and 1.1%, respectively.

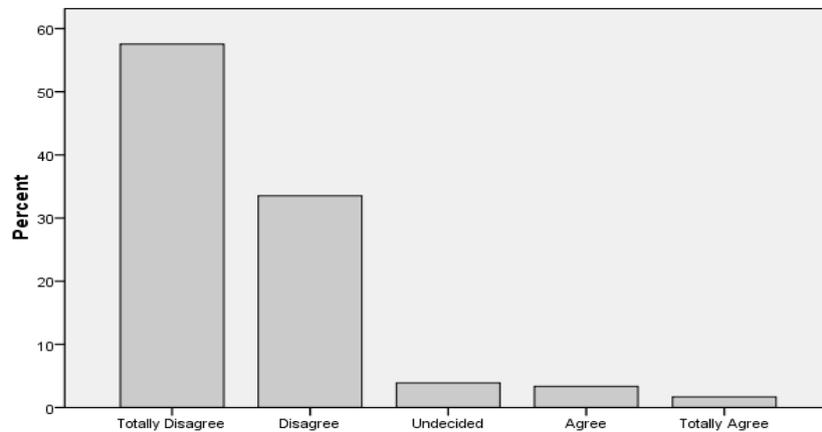


Figure 3: Whether IUE creates a pressure for closure of some enterprises

The participants were asked whether IUE has been forcing the small and medium enterprises into closure. 57.5% of the participants totally denied its effects and another 33.5% disagreed. Only 3% of the respondents claimed that IUE is a major force for enterprise closures.

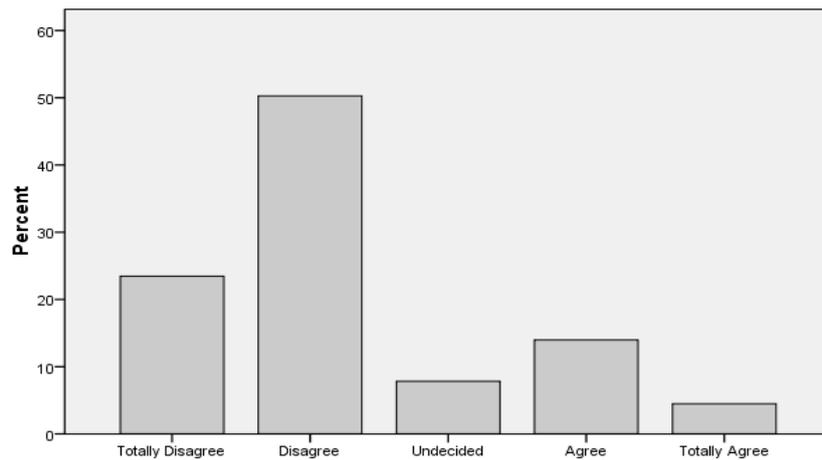


Figure 4: Whether IUE did not create a need for new employment around IUE

The participants were asked whether IUE has been creating fresh employment opportunities or not. 50.3% of the participants denied that IUE has not been helpful for increasing the employment need, and 23.5% totally disagreed whereas 14% of the respondents agreed that IUE does not have any effect on new employment need.

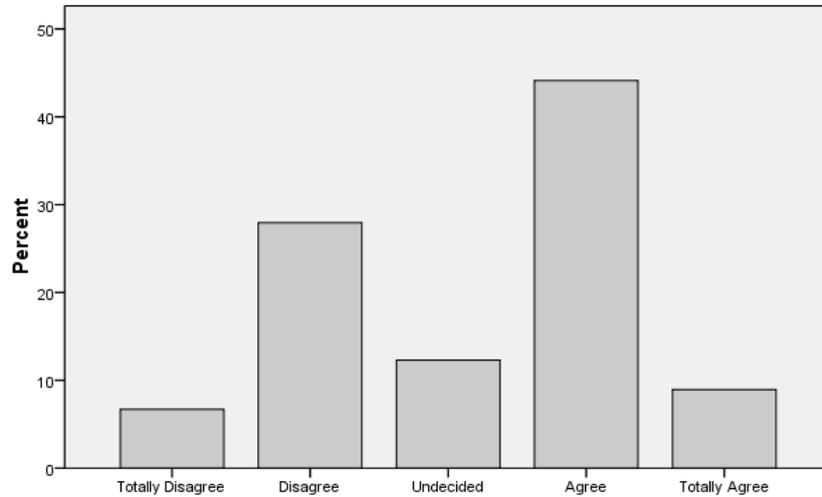


Figure 5: *Whether IUE caused an increase on the enterprise income*

The participants were also asked whether IUE has been causing an increase on the SME income. 44.1% of the participants agreed that IUE has a significant effect on the income level hike, where 27.9% disagreed with the claim. 12.3% of the respondents remained undecided.

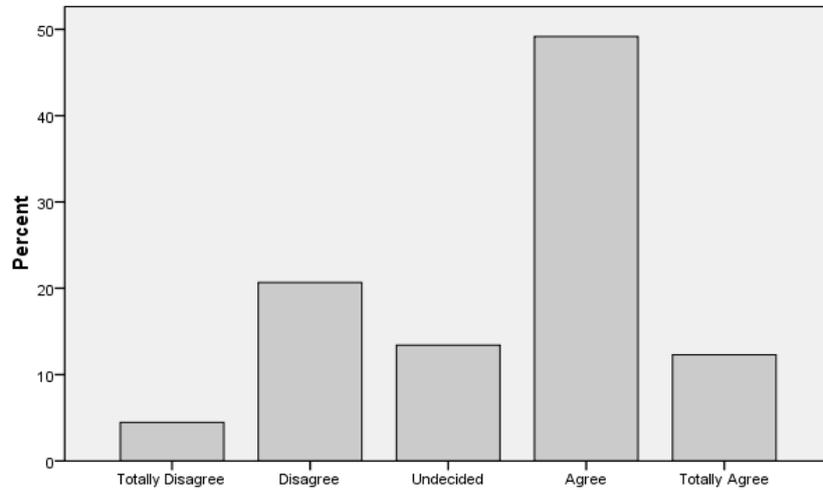


Figure 6: Whether IUE caused an increase on the number of customers

The participants were questioned on whether IUE has been affecting the amount of customers SMEs receive. 49.2% of the participants agreed that IUE has a significant effect on the customers in numbers, where 20.7% disagreed with the claim. 13.3-4% of the respondents remained undecided.

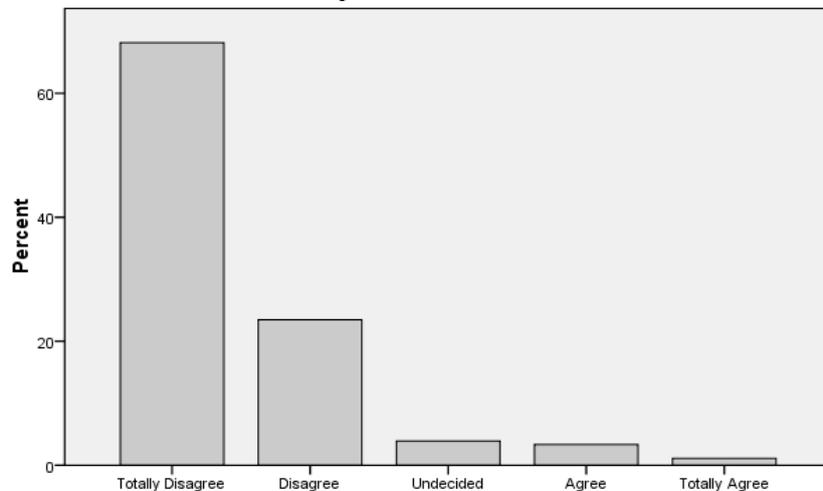


Figure 7: Whether IUE drives small enterprises into bankruptcy

As the last question, the participants were asked whether IUE has been driving the SMEs into bankruptcy. 68.2% of the participants totally disagreed that IUE has an effect on the bankruptcy of the enterprises, and 23.5% disagreed with the claim. Only 3.4% of the respondents agreed with the claim whereas 3.9% remained undecided.

*B- Regression Analysis*

The results of the logistic regression analysis are shown in Table 2. The dependent variable is whether the small and medium enterprise has experienced an income increase after IUE has been founded. Explanatory variables that are used in logistic regression are determined based on backward elimination. The estimates tell us about the relationship between the dependent variable, where the dependent variable is on the logit scale, and explanatory independent variables. The dependent variable is calculated as 1 if the vendor has experienced an income increase after the foundation of IUE, 0 otherwise. The explanatory variables are number of days the business is open (DaysOpen), number of hours a day the business is open (HoursOpen), and six binary (dummy) variables, namely whether an increase in customers after IUE (CustomersAfterIUE), whether an increase in rival local vendors after IUE (RivalsAfterIUE), whether the foundation of business is related with IUE (RelatedToIUE), whether a change in revenue when IUE is closed (RevenueChange), whether the vendor would have still founded the business if there were no IUE (UnrelatedIUE), and whether vendor would wish to open the business closer to IUE (WishCloser).

Table 2: *Logistic Regression Output*

	Coefficient	Std. Error	Wald	df	P	OR	95% CI for OR
DaysOpen	0.987**	0.393	6.318	1	0.012	2.685	1.242 – 5.797
HoursOpen	0.073**	0.013	32.788	1	0.000	1.075	1.049 – 1.103
CustomerAfterIUE	1.430**	0.297	23.387	1	0.000	4.176	2.338 - 7.452
RivalsAfterIUE	1.011**	0.402	6.275	1	0.010	2.748	1.247 – 6.051
RelatedToIUE	1.517**	0.308	24.108	1	0.000	4.553	2.487 – 8.337
RevenueChange	1.554**	0.381	16.644	1	0.000	4.729	2.241 – 9.977
UnrelatedIUE	-0.725*	0.417	3.022	1	0.081	0.484	0.913 – 4.688
WishCloser	-0.286**	0.142	4.382	1	0.042	0.752	0.582 – 0.959
Constant	0.058	0.533	0.012	1	0.912	1.061	0.755 – 1.612

Regression model contains 168 observations. \*\* Significant at the 0.05 level. \* Significant at the 0.10 level.

These estimates tell the amount of increase or decrease in the predicted log odds of an increase in income of vendor that would be predicted by a 1 unit increase or decrease in the explanatory variable when all other variables are held constant. Wald test and P-value show if the estimates are statistically significant. The estimates are hard to interpret since they are in log-odds units, thus they are also converted into odd ratios (OR).

The results demonstrate that all variables are statistically significant. However, “whether the vendor would have still founded the business if there were no IUE” variable is significant only at the 10% significance level. As expected, vendors who work more days and more hours are more likely to experience an income increase. More importantly, other estimates confirm the impacts of IUE on these small and medium size businesses. Businesses that are founded with related to IUE are more likely to observe an income increase, i.e. the likelihood to have a rise in income for businesses that are founded with related to IUE is almost 4.5 times of that for businesses that are not founded with this purpose. Moreover, the probability of having an increase in income for businesses which believe that their customers have increased after IUE and their revenues vary the times when IUE is closed, is more than 4 times of businesses whose customers haven’t increased after IUE and whose revenues does not change when IUE is not closed. Furthermore, vendors that would have wished to open their businesses closer to IUE and vendors who state that they would have still opened their businesses even there were no IUE are less likely to experience an income increase after the foundation of IUE.

#### **V. Conclusion and Discussion**

This study conducts a survey to assess the economic impacts of Izmir University of Economics on its local businesses. The survey was administered to a random sample of 168 local small business units. A variety of background information about the vendors, their long-term income information and relation with IUE have been gathered. Several descriptive statistics and a multiple logistic regression have been employed. The study results indicate that IUE is a strong economic force in the local district; students, faculty, staff and university expenditures have significant positive effects on the local economy.

In line with traditional economic theories, the results of this study demonstrate that local businesses that work more hours and more days are more likely to generate higher incomes than others (Rittenberg and Tregarthen, 2009). Other results of this study confirm the economic impacts of IUE on local economy. Firstly, local businesses state in the questionnaire that they employ several current and graduate IUE students and most of them report that IUE students, faculty, and other personnel are their frequent customers. Hence, these businesses make a number of their business decisions based on IUE. Similar to the results of an American study, logistic regression results demonstrate that businesses that are founded with related to IUE are more likely to observe an income increase than those that are not founded with this purpose (Ohme, 2003).

As asserted in Sen’s (2011) study, most local businesses state that IUE and its community is a significant asset to their business and several others indicate that their success was based solely on IUE. Logistic regression estimates confirm this idea that businesses which believe that their customers

have increased after the foundation of IUE and businesses whose revenues vary the times when IUE is closed have more chances of higher incomes than other businesses. Furthermore, as seen in literature often, several business respondents note how well IUE enhanced Balçova district, the advantages of a university town, the additional business generated by visitors because of IUE and its events, and some express their wish to be founded earlier and closer to IUE (Munnich and Nelson, 2003). The regression results assert that these vendors that would have wished to open their businesses closer to IUE and vendors who state that they would have still opened their businesses even there were no IUE are less likely to experience an income increase after the foundation of IUE.

Through this study, IUE can identify economic impacts on enterprises in İzmir and more specifically, in the district of Balçova. Local businesses continue to find the university and its community key to their financial success. The overall findings of this study indicate that the economic impact of IUE on the local and city economy has a possibility of generating significantly greater returns in the near future. The direct and indirect relationships between income changes of local businesses and the economic contribution of the university can be examined with a more detailed and expanded data set through a further study. An adaptation of this study could include a repeated data collection which would examine economic growth over time. With this information, the administration of IUE can compile the results and suggest future policies, streamline necessary investments and track social, economic and individual impacts of IUE.

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