



Journal of University Studies for inclusive Research (USRIJ)  
مجلة الدراسات الجامعية للبحوث الشاملة

ISSN: 2707-7675

**Journal of University Studies for Inclusive Research**

**Vol.9, Issue 11 (2022), 8384-8413**

**USRIJ Pvt. Ltd.,**

## **A Business Success versus Failure Prediction Model for Small and Medium Enterprises in the Kingdom of Saudi Arabia.**

نموذج للتنبؤ عن عوامل النجاح والفشل للشركات الصغيرة والمتوسطة في المملكة العربية  
السعودية

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Journal of University Studies for inclusive Research (USRIJ)  
مجلة الدراسات الجامعية للبحوث الشاملة

ISSN: 2707-7675

## Abstract

This study aims to reveal the reason for the success of some Saudi companies and failure of others, by testing Lussier success and failure prediction model, which was originally developed using U.S data. This study examines the 15-variable Lussier model of business success versus expectation of failure with a sample of Saudi small and medium enterprises by using quantitative analysis. The results found that staffing, level of education, use of professional advice, and planning are statistically significant on business performance. These findings should lead to a re-examination of preconceptions that exist in Saudi Arabia regarding small and medium businesses, enable Saudi public policy makers who want SMEs success to offer more low-interest loans and provide more professional advice to small businesses at low or no cost. Simultaneously, company managers should be trained on how to develop a business plan, and how to employ appropriate workers, in order to achieve the vision of the Kingdom of Saudi Arabia 2030 in developing SMEs.

**Keywords:** *Success, Failure, Small and medium enterprises, Prediction Model, Saudi Arabia.*



## المخلص

تهدف هذه الدراسة إلى معرفة العوامل التي تتنبأ بنجاح وفشل الشركات الصغيرة والمتوسطة ويكون ذلك عن طريق إختبار نموذج لوزر وهو نموذج يحتوي على 15 عامل للتنبؤ عن نجاح و فشل الشركات الصغيرة والمتوسطة والذي تم اختباره في الولايات المتحدة الأمريكية وبعض دول العالم . سيختبر هذا النموذج على عينة من الشركات الصغيرة والمتوسطة من السوق السعودي بإستخدام التحليل الكمي . وجدت هذه الدراسة بأن إختيار الموظفين المناسبين ، والمستوى التعليمي لأصاحب المنشأة ، وإستخدام مستشارين متخصصين والتخطيط جميع هذه العوامل تلعب دورا هاما في التنبؤ بنجاح و فشل الشركات الصغيرة والمتوسطة، وقد اوصت هذه الدراسة متخذ القرار بالعمل على تخفيض الأعباء المالية على الشركات الصغيرة والمتوسطة وتقديم المزيد من التمويل منخفض التكلفة وتقديم النصح والمشوره المهنية لأصحاب الشركات الصغيرة والمتوسطة وتدريبهم على إعداد خطة عمل ووضع الاستراتيجيات اللازمة للقيام باختيار الموظفين ذو الكفاءة المناسبة. هذه الدراسة تساهم في تطوير قطاع المنشآت الصغيرة والمتوسطة والتي هي من مستهدفات رؤية المملكة 2030.

**الكلمات المفتاحية :** نموذج للتنبؤ ، نجاح ، فشل ، الشركات الصغيرة والمتوسطة ، السعودية



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ISSN: 2707-7675

## Introduction

The business world is witnessing a great fluctuation in the rates of success and failure of companies in various countries of the world, and the fundamental question remains: why do some businesses succeed and others fail? Every entrepreneur begins with high hopes for success, but there are new responsibilities that define and control that success (Morse et al., 2007). In free-market economies, start-ups and small businesses have long been recognized as a major source of jobs, economic resilience, technical innovation, and growth, but their survival rate is a controversial and worrisome issue. There are many that fail repeatedly and there are those that survive but make marginal profits that would be detrimental to the effective operation of the market economy (Storey et al., 1987; Cooper et al., 1991). Thus, the ability to identify those factors associated with the survival or failure of a particular business is of great interest to public policy makers interested in economic development (Reynolds, 1987) and indeed who the potential entrepreneurs themselves are.

In 2020, the United States had the worst start-up failure rates with 90% of new start-ups failing, 75% of risk-backed startups failing, less than 50% of companies making it to their fifth year, less than 33% of start-ups surviving for 10 years, and only 40% of start-ups making a profit (Chernev, 2021). With regards to Saudi Arabia, great attention has been given to start-up and small companies in accordance with the Kingdom's 2030 vision. This took the form of focusing on increasing the contributions of small and medium enterprises (SMEs) in national non-oil production from 30% to 60% and increasing the contributions of small and medium enterprises in the GDP from 20% to 36%, where the global standard is 51%, whilst reducing the failure rates of small and medium-sized companies during the first three years. However, according to the statistics mentioned in the study of Almawishir (2018) and Alshehri (2019), a great deal of work still needs to be done to achieve the figures outlined. According to some studies (Almawishir, 2018; Alshehri, 2019; Al-Tit et al., 2019; Rafiki, 2020) these failure factors may be due to a lack



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of update technology taken together with the political climate as a result of political conflicts in the surrounding environment of the kingdom. In addition, the economic situation negatively affected the growth of small and medium enterprises due to the drop in oil prices and the reform of the economy in Saudi Arabia. Legal factors also have a negative impact on the growth of around half of the SMEs.

These two previous Saudi studies contradict what was recently stated by a senior official at the National Institute for Entrepreneurship (Riyada) in July of this year 2021, indicating that 84 percent of Saudi entrepreneurs succeeded in their commercial projects, while only 16 percent failed. This is a very high percentage compared to international standards. The CEO of Riyada, a government agency that promotes the National Entrepreneurship Program for Emerging Entrepreneurs, stated in a press conference that 4,720 young Saudi entrepreneurs have started their businesses in 181 categories. Riyada trained 9,447 out of 10,000 target trainees in entrepreneurship skills and business plans. According to the chairman of the Riyadh board of directors, 7,900 Saudis have been approved for loans out of the 10,000 who have completed their business plans, and another 1,000 are in the process of opening, with the majority of companies succeeding. These differing viewpoints require a real assessment of the factors of success and failure in the Kingdom of Saudi Arabia, an omission not filled by previous studies, but one that this study will rectify (Arab News, 2021).

Thus, the prospect of forming a profitable venture is a critical issue for those weighing up the risks of starting a business (Dennis & Fernald, 2001) and understanding why some fail and others succeed is critical to the stability and health of the economy (Pompe&Bilderbeek, 2005; Carter et al., 1997).

Predicting the fate of entrepreneurship is an important area of research (Pompe&Bilderbeek, 2005; Davidsson&Kolsftan, 2003; Westhead et al., 2001) because bankruptcy is costly and disruptive to a variety of stakeholders including owners, investors, and communities (Van Auken et al., 2009). Success versus Failure (S/F) prediction research benefits both potential and existing



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entrepreneurs; those who help, train, and advise them; those who provide capital for their projects together with their researchers, suppliers, and public policy makers (Dennis & Fernald, 2001). The evidence provides insight for government and academic institutions in their efforts to provide resources that may help reduce the incidence of bankruptcy (Carter & Van Auken, 2006). However, discovering the factors or practices that lead to business success and failure is an unrealized purpose of business research (Rogoff et al., 2004).

While there have been many studies investigating the determinants of success and failure of business in different countries (Altman, 1983; D'Aveni, 1989; Dugan & Zavgren, 1989; Flahvin, 1985; Gilbert et al., 1990; Keats & Bracker, 1988; Pech & Alistair, 1993), accurate models for predicting project success are not widely available (Reynolds & Miller, 1989). Moreover, although there is research interest regarding the success and failure of small and emerging businesses in Saudi Arabia, especially in light of Saudi Arabia's Vision 2030, (Almawishir, 2018; Alshehri, 2019), so far, there is a shortage of studies that offer comparisons between the success prediction model versus the failure prediction model in Saudi Arabia, the leading business country in the Arabian Gulf.

This study adds to the previous literature because there is such a wide discrepancy in the articles dealing with S/F prediction variables, and thus there is no theory. Previous researchers have concluded that success factors differ across countries (Benzing et al., 2009). Thus, an empirical study comparing domestic and international small businesses (Oviatt & McDougall, 2005) and replicating the results at the national level (Lussier & Pfeifer, 2001) is needed. The aim of this study was to test the Lussier (1995) model to predict success versus current failure by testing a sample of companies from Saudi Arabia with the belief that if the same variables predict success and failure in two different countries such as Saudi Arabia and the United States of America, which is the source of this model, this may be a starting point for developing a model that is applicable in many countries.



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## **The Prediction Model Choice S/F**

The preliminary stage of finding out was the choice of the current accomplishment model versus the non-assignment expectation model. A few of these samples are shown in writing, and they are divided by the ranges of companies they are applied to and the sort of information they use to predict disappointment (monetary and different information). Sheppard (1994) et al. examined the disappointment of larger partnerships. Many business disappointments forecast samples for larger firms are based on cash ratios or the Altman Z ratio (Eidleman, 1995). Regardless, much of the evidence points to managerial factors as being fundamental (for the conversation, see Scherr, 1989), and useful proportionality-based business disappointment samples were identified (Corman&Lussier, 1991; Gilbert et al., 1990; Stockton, 1989).

Storey et al. (1987) marked out that individual information can provide forecasts that are necessary to monetary percentages. Further, models dependent on monetary factors are less relevant to small companies (scope of this examination), since monetary information from them is less accessible and less reliable than information from much larger firms. For these items, it was chosen to use a business disappointment forecast model that relies on non-financial information.

In the same vein, the addition of many exploration tests of the non-financial components, such as progress versus small business disappointment, and careful trial of the consistency of these components, is uncommon. Analysts who have devised disproportional samples based on insight include Cooper et al. (1990; 1991), Lussier (1995, 1996a, 1996b, 1997), LucerandCorman (1996), Lussier and Pfeiffer (2000), and Reynolds and Miller (1989). Among these, the Lussier (1995) model was selected for public testing. The model is non-financial and uses Resource-Based Theory (RBT), being enabled by a better understanding of the function of assets in new endeavors by focusing on recognized evidence and asset purchases, rather than the arrangement or assignment processes that are vital to the association's long progress (Lichtenstein & Brush, 2001). This model is among the most recent and is based on early exploration - the insight



factors were selected based on a written audit of 24 previous papers, illustrating the scientists' choice of this exam.

The form is divided into two templates: the full model, which includes all 15 variables based on the review of the literature, and the reduced model including only four variables (S/F = *f* planning, professional advice, education, and staffing) that were found individually to be statistically significant in the original study with data from the USA (Lussier&Pfeifer, 2001). An explanation of 15 variables was included in the model and they are demonstrated in Table 1. However, the sources of 15 variables and the discrepancies between the 24 studies are offered in Table 2.

Table 1: Explanation of success versus failure variables.

Variables	Lussier model propositions
<b>Capital (capt)</b>	Businesses that start undercapitalised have a greater chance of failure than firms that start with adequate capital
<b>Record keeping and financial control (rkfc)</b>	Businesses that do not keep updated and accurate records and do not use adequate financial controls have a greater chance of failure than firms that do.
<b>Industry Experience (inex)</b>	Businesses managed by people without prior industry experience have a greater chance of failure than firms managed by people with prior industry experience.
<b>Management Experience (maex)</b>	Businesses managed by people without prior management experience have a greater chance of failure than firms managed by people with prior industry experience.
<b>Planning (plan)</b>	Businesses that do not develop specific business plans have a greater chance of failure than firms that do.
<b>Professional Advisors (prad)</b>	Businesses that do not use professional advisors have a greater chance of failure than firms using professional advisors.
<b>Education (educ)</b>	People without any college education who start a business have a greater chance of failing than people with one or more years of college education.
<b>Staffing (staff)</b>	Businesses that cannot attract and retain quality employees have a greater chance of failure than firms that can.





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<b>Product / Service Timing (psti)</b>	Businesses that select product/services that are too new or too old have a greater chance of failure than firms that select products/services that are in the growth stage.
<b>Economic timing (ecti)</b>	Businesses that start during a recession have a greater chance of failing than firms that start during periods of economic expansion.
<b>Age (age)</b>	Younger people who start a business have a greater chance of failing than older people starting a business.
<b>Partners (part)</b>	A business started by one person has a greater chance of failing than a firm started by more than one person.
<b>Parents (pent)</b>	Business owners whose parents did not own a business have a greater chance of failure than owners whose parents did own a business.
<b>Minority (mior)</b>	Members of minorities have a greater chance of failure than non-minorities.
<b>Marketing (mrkt)</b>	Business owners without marketing skills have a greater chance of failure than owners with marketing skills.

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Source: (Marom&Lussier, 2014)

Table 2: A comparison of variables identified in the literature as factors contributing to business success versus failure

Study	Independent Variables														
	cap t	rkf c	Ine x	Mae x	pla n	pra d	edu c	sta f	pst i	ect i	age	par t	pen t	Mio r	mrk t
Barsley&Kleiner, 1990	F	-	F	F	F	F	-	-	-	-	-	-	-	-	-
Bruno et al., 1987	F	F	-	F	F	-	-	F	F	F	-	-	-	-	F
Cooper et al., 1990	F	-	N	N	F	F	N	-	F	F	F	F	-	F	-
Cooper et al., 1991	F	-	F	N	-	F	F	-	N	N	N	N	F	F	-
Crawford, 1974	-	-	F	-	-	F	F	-	N	N	N	-	-	-	-
Dun & Bradstreet, 1995	F	F	F	F	-	-	-	-	F	F	-	-	-	-	-
Flahvin, 1985	F	F	F	F	-	F	-	F	-	-	-	-	-	-	-
Gaskill et al., 1993	N	F	F	F	F	F	N	-	N	N	-	-	-	-	F
Hoad&Rosco, 1964	-	-	F	N	N	F	F	-	-	-	-	-	-	-	-
Kennedy, 1985	F	-	-	F	F	-	-	-	F	F	-	-	-	-	-
Lauzen, 1985	F	F	-	F	F	-	-	F	-	-	-	-	-	-	-
Lussier, 1995	N	N	N	N	F	F	F	F	N	N	N	N	F	N	N
Lussier, 1996a	N	F	N	F	F	F	N	F	F	F	N	F	F	N	F
Lussier, 1996b	N	F	N	N	F	F	N	N	F	F	F	N	N	N	N
Lussier&Corman, 1996	F	F	F	N	F	F	F	F	F	F	N	N	F	F	N
McQueen, 1989	F	-	F	F	-	-	-	-	-	-	-	-	-	-	F



Reynolds, 1987	F	F	-	-	F	-	-	-	-	-	-	-	-	-	N
Reynolds & Miller, 1989	F	F	-	-	F	-	N	N	-	-	N	F	-	-	-
Sage, 1993	F	-	-	F	-	-	F	F	-	-	-	-	-	-	-
Sommers &Koc, 1987	-	-	-	F	F	-	-	-	-	-	-	-	-	-	-
Thompson, 1988	N	-	-	F	F	-	-	-	-	-	-	-	-	-	F
Vesper, 1990	F	F	F	F	N	F	F	F	F	F	-	F	-	-	F
Wight, 1985	F	F	-	F	-	F	-	-	-	-	-	-	-	-	-
Wood, 1989	-	F	F	F	F	-	F	F	-	-	-	-	-	-	-
<b>Total F</b>	<b>15</b>	<b>13</b>	<b>11</b>	<b>15</b>	<b>15</b>	<b>13</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>6</b>
<b>Total N</b>	<b>5</b>	<b>1</b>	<b>4</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>4</b>
<b>Total-</b>	<b>4</b>	<b>10</b>	<b>9</b>	<b>3</b>	<b>7</b>	<b>11</b>	<b>11</b>	<b>13</b>	<b>13</b>	<b>12</b>	<b>16</b>	<b>16</b>	<b>19</b>	<b>18</b>	<b>14</b>

**F= supports variable as a contributing factor**

**N= does not support variable as contributing factor**

**-= does not mention variable as a contributing variable**

**Source: (Lussier& Pfeifer, 2001)**

Lussier's model was examined in Central-Eastern Europe, in the Republic of Croatia. A random sample was drawn from the list of Croatian Chamber of Business firms. In total, 120 out of 350 owner/manager surveys were adopted in this study. Of these, 84 projects were successful and 36 failed. The dependent variables were dichotomous for success or failure, as successful firms have generated at least average industry profits over the past three years, as opposed to failed firms that have conversely not made a profit for the last three years. This definition was used because bankrupt companies could not be identified and found while the United States study was conducted, because it identified failure on the basis of bankruptcy. The logistic regression model was used to test the model in Croatia, as this tool was tested in the original study. The results indicated that the reduced model (with the four variables of staffing, education level, use of



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professional advice, and planning) is statically significant and predicts success in Croatia, because the model accurately predicted 91% of the successful businesses in the Croatian sample. In summary, all these variables in the reduced samples function with the enterprise's human resources, which led towards a reconsideration of small businesses' potential to exist in Eastern Europe (Lussier&Pfeifer 2001).

The Lussier model was subsequently applied in South America with a sample from Chile. A sample of 1,800 small businesses was randomly selected from the Chilean National Chamber of Commerce database, and the survey instrument was emailed to the owner/CEO. The logistic regression model was used and the model was found to be statistically significant. Moreover, the ability of the full model to predict a specific SME as successful or failed was set at about 63.2% of business. In addition, the model in Chile was found to be better at predicting business failure (73%) than success (51%). In the same way, the reduced model was tested and found to be statistically significant in predicting failed SMEs in Chile (Lussier&Halabi, 2010).

The Lussier model has also been applied regarding the businesses in the Middle East. The outcomes of the logistic analysis show that the model was statistically significant with the ability to predict a particular business regardless of success or failure in 85.4% of the businesses. The model predicted levels of business failure, with a success rate of 86% and a successful business of 84%. These results are similar to those identified in the United States. Hence, it can be concluded that the timing variable of the economy becomes necessary. New start-up companies should have specific plans that have sufficient capital, good record keeping, and financial control; anticipate marketing sales to ensure continued solvency, and in addition the contribution of professional advice will improve the business plan (Marom&Lussier, 2014).

Regarding the aforementioned, the Lussier model should be used to search for more texts for the purpose of gaining both further validation and wider acceptance worldwide. The model does not identify some external variables that also play a fundamental role in influencing business performance, such as government regulations, supplier availability, and intensity of competition,



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which means that the model needs to be improved and more common variables relevant to different countries need to be added, in order to gain global acceptance. However, the Lussier model is an important contributor to the field of SMEs, as it fills a gap in the literature by creating a basic list of success/failure elements that SMEs will experience (Marom&Lussier, 2014).

The first concept of this research hypothesis is that both full and reduced Lussier models will predict the success and failure of Saudi enterprises. Although previous researchers have concluded that success factors are variable in different countries, common sense suggests that “business is business” and thus the determinants of failure and success will be largely the same across different country contexts, and thus the current research assumes that it will predict the model is also S/F in Saudi Arabia.



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## Research Methodology

### Study Design and Sample

The main methodology of this study is to examine the Lussier Survey (1995) in Saudi Arabia, which was mainly based on questionnaires that were a major component of quantitative research on small business and entrepreneurship (Dennis, 2003). In fact, a review of four journals (ISBJ, ET&P, JSBManJJBV) revealed that 33% of the articles were based on the postal (mail) survey (Newby et al., 2003). A self-report questionnaire was used by Lussier (1995) to collect data and was obtained and used in this research, but it has been modified to recognize differences between languages and countries. A panel of five experts in the Arabic language and business practices in Saudi Arabia modified and translated the questionnaire. The questionnaire was also experimentally tested to assess the tool's reliability. The criteria used in the original questionnaire were largely maintained.

The Common Firms Analysis Level (Brush et al., 2008) was used with a random sample, which consisted of 200 small and medium-sized corporations that were selected from the Saudi Chambers Federations database, and the survey tool was emailed to the owner/CEO. Of these, 115 questionnaires were returned, resulting in response rates of 58 percent. However, six of these respondents did not meet the criteria required to fill in the relevant data for profit (S/F), resulting in only 109 usable questionnaires.

Based on the aforementioned, the remaining sample contains a total of 109 owners/managers representing 67 successful companies and 42 failed companies. This is a good and sufficient sample size for the study, and comparison with others in the same context. For comparison, in a study of institutions in transition, Pu-ko (1995) used a sample size of 64 with a response rate of 26%; Carter and Van Oken (2006) used a sample of 57 bankrupt and 55 non-bankrupt firms, and Van Gelder et al. (2007) used 71 operational business owners and only 20 failed business owners. However, in Lussier's Native American Study (1995), a total of 216 business participants were used, half of whom were successful and half failed; the response percentage



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was 39 percent. The response rate for the current study (58%) can be said to be also high, given that the response percentage for typical business studies is 10.5% (Grünhagen&Mittelstaedt, 2005).

### **Measures of the Variables**

The dependent variable was dichotomous: success or failure. A criterion for determining a company's success or failure was developed for this study, whereby to be considered successful, the company must have generated at least average profits in the business for the previous three years. Failure was therefore defined as not making a profit for the previous three years.

Accordingly, to determine the success or failure of the company, one question (question no.10) in the survey tool was directed towards evaluating the success or failure, which asked: "What is the level of profit for your business in the past three years?" The answers to these questions were divided into three options: "I made profits during the previous three years", "there was no profit or loss", and "I did not make profits during the past three years". Six companies (5 percent of the original respondents) chose "there is no profit or loss" and it was consequently removed from the sample as previously explained. As for the independent variables, the fifteen independent variables shown in Tables 1 and 2 were evaluated via the questionnaire in the same way generally as in the previous original American study.

### **Non-response Bias**

One method of testing for non-response bias is to use late respondents as surrogates for non-respondents (Nwachukwu et al., 1997). Non-response bias was minimized by following up initial non-respondents and by comparing statistically the initial non-respondents' data to that of the initial respondents to test for significant differences (Lussier, 1995). Responses of firms responding to the initial mailing (90 percent of the sample) were contrasted with those responding to the follow-up (10 percent of the sample). Of the 15 variables in the full model, no



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responses were significantly different between the two groups using t and chi-square tests. Thus, there was no evidence of non-response bias.

## **Results and Discussion**

The size and age of the responding corporations was deemed one of the most important matters to consider before testing models, because they manage and control the variables that affect the success or failure of firms. In general, small firms are more likely to fail than large firms, and new firms are more likely to fail than old firms (Aldrich & Auster, 1986; Reynolds, 1987; Shane, 1996). However, this issue only occurs if there are substantial differences in size and age between failed and non-failed firms in the sample. In this sample, the average size, as measured by the number of employees, was 54 for failed firms versus 58 for successful firms. The average age of failed businesses was 15.1 years versus 15.9 years for successful businesses. In the researcher's judgment and using independent T-test statistics to compare means, these differences are not sufficient to influence the results and are not statistically significant at the 0.05 level, where sig. (2-tail) for size was  $p = 0.714 > 0.05$  and sig. (2 tails) for age was  $p = 0.807 > 0.07$ , so neither age nor size control were included in the test.

Although the U.S. sample, all industry sectors were included and the sample, like the population, included significantly more commercial firms (38) and service (32) than other specialized sectors (18), industrial (11), hospitality (8), and agriculture (2); also, Chi-square testing found no significant differences between the successful and failed businesses by industry. In addition, there are relatively equal numbers of successful and failed firms by industry, and industry should not bias the results.





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As well as using logistic regression to examine the models, this was also used to examine the determinants of success and failure in studies by Lussier (1995), Cooper et al. (1990; 1991); Reynolds (1987) and Reynolds and & Miller (1989). Results of the logistic regression are presented in Table 3.

### **Overall Level of Significance for the Models**

A proper examination for the total significance of the model is deemed the proper model, according to the measurement by the  $-2$  log-likelihood (LL) statistic. LL compares the actual model to the "ideal" model in which all cases are correctly classified. In logistic regression, the chi-square of this statistic is used to test the level of significance of the model, compared to the F-test in standard regression. The chi-square model tests the null hypothesis that the coefficients of all variables in the model, except for the constant, are 0.

As mentioned in Table 3 below, the LL statistic is 130.126 for the full model, which is not statistically significant ( $p = 0.437$  for the chi-square statistic). This is in sharp contrast to the results of the same model which is applied to US data, where  $p = 0.0011$ . This opposite result may be due to the much smaller sample size (109 in Saudi Arabia versus 216 in the United States). It could also result from the different definitions of failure used in the two studies. In the American study, the company had to go bankrupt in order to be included in the failed sample, while in the Saudi study, only a period of accounting losses was needed for the listing. Accounting losses of this nature may or may not result in actual failure. The American sample criterion is more stringent and may lead to more severe differences between groups.



Table 3: Logistic regression model test results

Model Parameter Estimates	Full Model		Reduced Model	
<i>Variables Name</i>	$\beta$	Model Sig.	$\beta$	Model Sig.
1. Capital (capt)	0.431	0.084		
2. Record keeping and financial control (rkfc)	0.350	0.088		
3. Industry Experience (inex)	-0.016	0.641		
4. Management Experience (maex)	0.025	0.487		
5. Planning (plan)	0.076	0.752	0.223	0.221
6. Professional Advisors (prad)	-0.071	0.730	0.048	0.760
7. Education (educ)	0.127	0.043	0.038	0.012
8. Staffing (staff)	-0.225	0.245	-0.062	0.046
9. Product / Service Timing (psti)	-0.203	0.382		
10. Economic timing (ecti)	0.065	0.760		
11. Age (age)	0.008	0.767		
12. Partners (part)	0.086	0.865		
13. Parents (pent)	0.468	0.375		
14. Minority (mior)	0.359	0.656		
15. Marketing (mrkt)	-0.205	0.340		
Constant	-2.181	0.280	-1.201	0.215
<b>Model Total Results</b>				
-2 Log Likelihood	130.126		142.833	
Goodness of Fit	0.177		0.031	
Model Chi-square	15.195		2.488	
Model Significance	0.437		0.047	
Improvement Chi-square	15.195		2.488	
Improvement Significance	0.437		0.047	
<b>Classification Results</b>				



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<b>Correctly Classified Cases (Percent)</b>		
<b>Success(Percent)</b>	85.1	94.0
<b>Failed(Percent)</b>	47.6	9.5
<b>Overall(Percent)</b>	70.6	71.5

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A later method used was that of surveying the model's performance score as the percentage of instances it is actively requesting. Here, the full model gets better; the percentage of correct classification using data for Saudi Arabia and the United States is comparable: 69% in the United States (Lussier, 1995) and 70.6% in Saudi Arabia.

The reduced model was found to be statistically significant ( $P = 0.047$ ). At the point when this reduced model was applied to the US data, the statistical significance was higher ( $p = 0.0001$ ); the model shows a much smaller portion of the difference between success and failure in the Saudi sample. For the US and Saudi samples, the reduced model correctly classifies about 71% of the sample. Despite this, the reduced-model presentation of Saudi data is unbalanced compared to its gallery on data of US.

The reduced model specifically predicted 73% of failed US companies and 65% of successful companies. In contrast, while the model accurately predicted 94% of successful enterprises in the Saudi sample, it only accurately predicted 9.5% of failures in Saudi businesses. Although the overall accuracy rate of the reduced model is about something similar in both places, the model is more accurate in predicting failures in the United States, yet more accurate in predicting success in Saudi Arabia.



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## **Discussion of Individual Variables in the Reduced Model**

Regarding logistic regression, the appropriate examination for the significance of individual variables, is deemed the Wald Chi-square statistic (log probability 2 (LL)). For the purpose of testing whether each coefficient is zero, the Wald chi-square statistic is calculated as the square of the ratio of the coefficient to the standard error. Here, education and employment are the only significant factors ( $p = 0.012 < 0.05$ ) for predicting success and failure in both the complete and reduced models. In the reduced model, the other two variables (planning and professionals advice) were not significant.

The reason for the availability of a lack of significance for individual independent variables within the model is most likely explained by the model which has a close multiple linear relationship. There is a linear relationship, which is also called an opposite linear relationship or merely a multilinear relationship, when one independent variable is linearly dependent on one or more independent variables; without the variable(s) there are no estimators. For example, the number of years of experience in the industry, the number of years of managerial experience, and the age of the owner are likely to be highly correlated. For more detailed explanations, the following text has examined the statistical results of each of the variables in the reduced model.

The education variable has a positive sign as was expected - the owners/managers of successful corporations that were more educated than those of unsuccessful ones. Regarding staffing, the sign of the variable representing difficulty in finding suitable employees, is unexpected, although the variable is statistically significant. This variable is reverse-scaled, so a negative sign was expected, but in fact, a positive sign was found. This is similar to the results of applying the reduced model in US data. However, unsuccessful owner/managers stated that they had less difficulty with employment opportunities than successful ones (Lussier, 1995). One possible reason for this finding, relates to the human resource viewpoint taken into consideration in Saudi Arabia, where it is generally believed that employees have little to do with business success as



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stated by Lussier and Pfeifer (2001). The most successful owner/managers may understand the value of good employees and thus see the hiring of qualified employees as more difficult, while unsuccessful owners do not view hiring as a problem (Lussier& Pfeifer, 2001; Lussier, 1995).

Moreover, the sign of the planning variable is unexpected in the full and reduced models. This variable is also an inverse measure, therefore, a negative sign was expected and indicated that successful businesses did more detailed planning than unsuccessful businesses, however this was not the result. However, unlike the US data, the planning variable is not significant at usual levels of significance. When running logistic regression incrementally, this variable does not enter the regression. These findings suggest that planning may not be as important for survival in Saudi Arabia, as it is in the United States. Similarly, the professional advice variable is reverse scaled and thus signed as expected in the full model only—the negative sign indicates that the successful businesses used more professional advice than unsuccessful firms. However, this variable is not statistically significant

These statistical results are encouraging in general, for US samples these are generally low levels of significance for samples and variables. This indicates that there are other important factors that may influence business success and failure in Saudi Arabia. More research is required to increase the explanatory power of the model, which could also increase its predictive power.



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## **Conclusion**

Nowadays, the Kingdom of Saudi Arabia focuses on paying attention to emerging small and medium companies, and to diversifying their economy whilst avoiding dependence on the oil economy in accordance with the Kingdom's Vision 2030. This interest became apparent after public policy makers in the Kingdom of Saudi Arabia recognized the necessity of small and medium businesses as solution to the problem of unemployment by employing the majority of forces employment and reviving the national income, so the prosperity of entrepreneurship is very important for the economic growth of the country.

Moreover, economists think that resources are not used in a sufficient way in Saudi Arabia, whereas the Kingdom aims through its vision to increase the contributions of SMEs in national non-oil production, from 30% to 60%, and also to increase the contribution of SMEs to the GDP from 20% to 36%, whereas the global standard is 51%, whilst simultaneously reducing the failure rates of SMEs during the first three years. However, according to the mentioned statistics in the study of Almawishir (2018) and Alshehri (2019), it was indicated that a great deal of work was needed in the Kingdom of Saudi Arabia in order to achieve these ambitious figures. According to some studies (Almawishir, 2018; Alshehri, 2019; Al-Tit et al., 2019; Rafiki, 2020), these failure factors may be the result of regulations, technology and the political climate, which are most likely due to political conflicts in the surrounding environment. In addition, the economic situation negatively affected the growth of small and medium-sized enterprises, as a result of the drop in oil prices and the reform of the economy in the Kingdom of Saudi Arabia. In the same vein, as a result of the development of the private sector, legislative institutions have been changed vastly, so this may lead to a negative impact on the growth of small and medium companies. This requires clarification of the determinants of the success or failure of projects and start-up businesses in the Kingdom of Saudi Arabia.



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Some people in Saudi Arabia think that business success is relevant to entrepreneurship & self-management skills, and this represents a semi-market economy that is closer to a free market economy than a planned economy. However, managers in the Kingdom's companies were deprived of training and suffered from a lack of interest in developing and training them in managerial and industrial skills. Many managers had no formal education or management training, and they did not use professional consultants. Management was not regarded as an occupation; rather, it was a social role that negatively affected the economy and entrepreneurship in the Kingdom of Saudi Arabia. However, there is a common belief that in order to be successful, you must be an entrepreneur, as economics and management skills have nothing to do with business success and failure.

Statistical results are tested from the reduced model. Other than that, the overall impact of education, employment, career counseling and planning actually predicts business success and failure in Saudi Arabia. This is of particular interest as it goes against the general belief that HR has nothing to do with success and failure as reported in the studies of Lussier&Corman (1996), Lussier& Pfeifer (2001) and Lussier&Halabi (2010). This means that policies related to human resources have to change and allocate more resources to employee development.

If the public policy makers and others use the model to evaluate the probability of the company for success, society can take advantage in direct and indirect ways by reallocating limited resources (governmental aid, loans, etc.) toward companies with higher potential. Moreover, prediction samples are not a change for current decision-making techniques. The model does not create numerical guidelines for the variables that distinguish success from failure; judgment is required upon application. The user should look at the list of variables in the model and self-evaluate the working strengths of each variable. If a system is used to assign a rating of strong, moderate, or weak to each variable, then an overall rating of strong, moderate, or weak can be assigned to the probability of success. However, when work is strong in some variables and weak in others, determining the probability of success is a more subjective process.



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Public policy makers who wish small businesses to succeed should take into consideration the provision of more low-interest loans, and for that reason, entrepreneurs do not continue to start with low capital. The government can also provide more career advice to small businesses at low or no cost to entrepreneurs. Consultants can provide an understanding of the capital needs to start a business, the mechanism for keeping records, and the financial controls. Management training may include business plan development mechanism, company contracting mechanism, and small business marketing mechanism. The government may wish to develop a Small Business Administration division according to US SBA government model.

Of importance is the fact that variables of Lussier's (1995) model predict success and failure in various countries, including the USA, Chile, Croatia and others in the previous research, as well as Saudi Arabia in the current research. This is because S/F predicts the benefits of research for both current and potential entrepreneurs; those who help, train and advise them; and those who provide capital for their ventures; their suppliers and public policy makers.

The regular borders related with cross-cultural studies apply to this research as well; there are many differences between cultures that the researcher cannot control (Sheen, 1993, 1994, 1996). For example, there are differences in legal systems, economic conditions, attitudes towards business failure, tendency towards risk aversion, and other factors between the USA in which the model was developed and Saudi Arabia, the country of the current study.

The most favorable outcomes of this study, despite the significant contradiction in the literature, see Table 2, and the significant differences between countries, the US model of Lussier (1995) is a necessary indicator of business S/F expectations in the Kingdom Saudi Arabia. The model may be an important indicator in other Gulf countries and states besides Saudi Arabia. The variables of business S/F in different countries are more similar than peoples' ideas, or may be the effect of globalization. The exploratory global forecasting model S/F may be a necessary indicator for





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forecasting in other countries too. Regarding the trends towards increasing globalization, S/F forecast samples for international business are becoming more valuable.

On the other hand, additional future research shall include gender as a factor that affects the business performance. Another potential field of research is the application of the American model Lussier (1995) to the variable Gulf countries to determine the most important factors which impact the success of the projects of each of Gulf country.



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