Master's Thesis

THE MEDIATING ROLE OF BUSINESS INCUBATORS IN PROMOTING ENTREPRENEURSHIP AND CREATING NEW BUSINESS START-UPS OPPORTUNITIES IN TAJIKISTAN

by

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Certification Page

I, NURALIZODA Umarali (Student ID 51220641) hereby declare that the contents of this Master's Thesis are original and true, and have not been submitted at any other university or educational institution for the award of degree or diploma.

All the information derived from other published or unpublished sources has been cited and acknowledged appropriately.

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NURALIZODA Umarali 2022/6/15

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"In the name of Allah, the Most Gracious and the Most Merciful"

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List of abbreviations

WB	World Bank
ADB	Asian Development Bank
EBRD	European Bank for Reconstruction and Development
UNDP	United Nations Development Programme
JICA	Japan International Cooperation Agency
OSCE	Organization for Security and Co-operation in Europe
DGIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
SCISPMRT	State Committee for Investments and State Property Management of the Republic of Tajikistan
SPSDE	State Program for the Support and Development of Entrepreneurship
GDP	Gross Domestic Product
SMEs	Small and Medium Enterprises
GRT	Government of the Republic of Tajikistan
RT	Republic of Tajikistan
ASPRT	Agency on Statistics under the President of the Republic of Tajikistan
NDSRT	National Development Strategy of the Republic of Tajikistan for the period up to 2030
SIFDET	State Institution "Formation and Development of Entrepreneurship in Tajikistan"
SIBIT	State Institution of business incubator in Tajikistan
BICs	Business incubation centers
BIs	Business incubators
BI	Business incubator
IPs	Incubation Programs
NABWT	National Association of Business Women of Tajikistan
NBIA	National Business Incubation Association
ICT	Information and Communication Technology
EI	Entrepreneurial intention

Abstract

This study examines the awareness of the existence of incubation programs (IPs) among university students in the Republic of Tajikistan. Specifically, it investigates the impact of business incubators on entrepreneurial intention among these students and the effectiveness and challenges faced by business incubators in Tajikistan.

The study employed a survey instrument to collect data from 716 graduate and undergraduate students who were studying entrepreneurship subjects at the university level in Tajikistan. From these 716 samples, a simple random sampling method was employed, and the data was analyzed from two perspectives, firstly using Binary Probit and Logit models and, secondly, the Ordered Probit and Logit models.

In terms of the findings, this study found that more than half of the students in Tajikistan are not aware of the existence of incubation programs and have a very low level of awareness about their services and benefits. Notably, the findings indicate that students majoring in entrepreneurship at university generally have a higher level of awareness about incubation programs than those who do not. The findings also revealed that factors such as gender, family income, and work experience play an essential role in the level of awareness among students. More importantly, the results show that those students who completed incubation programs had a higher intention to become entrepreneurs than those who did not complete incubation programs. Furthermore, concerning the effectiveness of business incubators in Tajikistan, the results revealed a significant relationship between infrastructure facilities support, training programs, and the effectiveness of business incubators on the growth of startups.

Based on these findings, the study concludes that infrastructure facilities support, and training programs provided by business incubators in Tajikistan could assist potential candidates to take advantage of new startup business opportunities, inspire them to develop new business plans, and help existing students enhance their competencies or address specific business difficulties.

JEL classification numbers: L26, M21, M10, M13

Keywords: Business incubators; incubation programs; infrastructure facilities support; training programs; startups growth; Tajikistan

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CHAPTER 1. INTRODUCTION

1.1 Background

This thesis will explore the development and operation of business incubators in the Republic of Tajikistan. Specifically, it will investigate whether incubation programs organized by the BIs can boost university students' entrepreneurial awareness, skills, and entrepreneurial intentions, since most residents of the Business Incubators in Tajikistan are university students and young people who are talented, creative, and innovative. In Tajikistan, most donor organizations, development partners, and associations carry out activities like business incubators through some short-term projects. Development partners in Tajikistan provide financial support to BIs in Tajikistan, creating a conducive business environment and innovative and sustainable financing. With the financial support of development partners such as the United Nations Development Programme (UNDP), the Japan International Cooperation Agency (JICA), the Organization for Security and Co-operation in Europe (OSCE), Deutsche Gesellschaft für Internationale Zusammenarbeit (DGIZ), and others, BIs in Tajikstan have conducted training courses for more than 4200 students from 20 universities in the republic (SI FDET (2021a). The UNDP (2021) reported that more than 400 young people have benefited and developed 147 startup project ideas in less than two years (UNDP, 2021).

Currently, several experts are working with young Tajik entrepreneurs on 25 advanced business projects and supporting them to prepare their startup projects for presentation to potential investors (UNDP, 2021). Moreover, the “Choikhona Startup”, (2021) reported that in 2021, during a 16-week period, 64 students (43 male and 21 female) participated in business modules led by leading entrepreneurs and top managers

of the leading companies (Choikhona Startup, 2021). Each week marked a separate topic (UNDP, 2021). Despite the great efforts made by the BIs in Tajikistan and other organizations, the effectiveness of these types of institution and centers is still uncertain and there is limited information on whether BIs in Tajikistan are achieving their goals and precisely what their impact is on the growth of startups. To that end, for those students who participated in incubation programs, this study seeks to determine whether the services provided by BIs in Tajikistan are effective in supporting the growth of startups or not. This study also aims to determine the level of awareness of students about incubation programs and challenges faced by students using the services provided by BIs in Tajikistan. If these challenges are addressed, then university students will become better entrepreneurs, resulting in higher incomes and more job opportunities.

It can be said that the private sector is the driving force of economic growth in Tajikistan. The private sector accounts for 68% of Gross domestic product (GDP) formation, 80% of tax revenue generation, and 67% of the working population in Tajikistan (Madzhanova, 2020). The Government of the republic of Tajikistan (GRT) has identified the development of the private sector, promotion of entrepreneurship, and start-up growth in the National Development Strategy of the Republic of Tajikistan (NDSRT), for the period up to 2030, as a key instrument for achieving national goals.

The private sector is important to the country's economic development and national development goals, as it contributes to ensuring energy security and efficient use of electricity, breaks the communication deadlock, turns the country into a transit country, ensures food security and access to quality food for the population, and expands productive employment (NDSRT for period up to 2030a). According to the NDSRT for the period up to 2030, the projected amount of funds for the next 15 years from all

sources of financing of the NDSRT is more than US$118.1 billion, of which US$54.7 billion (or 46.3 %) will be directed to the private sector (NDSRT for period up to 2030b). Therefore, entrepreneurship development and increasing the number of new industrial enterprises have become priority issues for the Government of Tajikistan.

In recent years, unemployment among young people in Tajikistan has increased, which has created immense economic and social challenges. The job creation rate has lagged behind population growth which has led to rising unemployment and emigration (World Bank, 2020). According to the Tajikistan Demographics Profile report (2021), most of the population of Tajikistan (around 62.6%) are young, under 30 years old (Tajikistan Demographic Profile, 2021), and many of the workforce, including one-third of men aged 20-39, have chosen to leave the country with the majority of them heading to the Russian Federation (World Bank, 2015). This trend exposes the economy to external shocks, and the private sector's role in the economy continues to remain small, contributing only 13% of formal jobs and around 15% of overall investment (World Bank, 2020).

According to the Asian Development Bank (2021), the country’s daily income is less than US $1.90, indicating that around one-quarter or 27.4% of the population of Tajikistan live below the poverty line (Asian Development Bank, 2021).

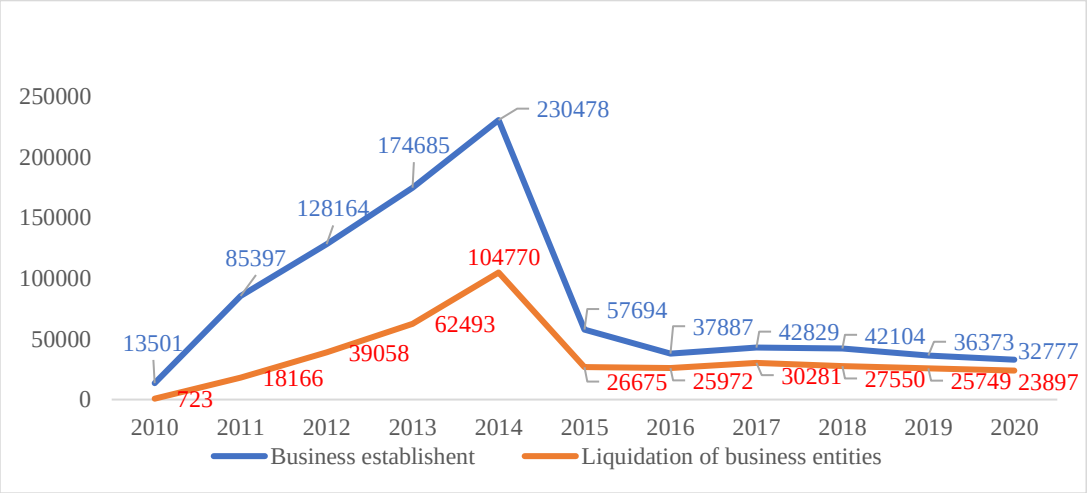
The National Bureau of Statistics (2021) reported that Tajikistan's labor force input rate is about 45.5 percent (National Bureau of Statistics, 2021). The high unemployment rate is primarily due to the low private sector development (World Bank, 2021). The development of the private sector by supporting entrepreneurship is one of the important aspects of the policies of President Emomali Rahmon and the Government of Tajikistan. Presidential grants in the amount of 2,5 million Tajik Somoni are annually allocated

from the state budget MJRT, (2021). In addition, international organizations operating in Tajikistan are implementing programs to improve the skills of young entrepreneurs, training courses on the basics of entrepreneurship, marketing, access to finance, and the provision of soft loans and grants.

Despite the measures taken, the country's entrepreneurs, including those in rural areas, still face many difficulties in their activities. These include low economic and legal literacy levels, lack of business planning and business plan development skills, working with information and communication technologies, access to finance, especially in rural areas, improving entrepreneurs' financial literacy, and protecting their consumer rights (SCISPMRT, 2021a). These problems, in turn, limit entrepreneurs' access to economic resources, including credit, land, and information. Research shows that business entities have faced difficulties and, as a result became bankrupt, and were liquidated because of a range of factors including, a lack of awareness of the requirements of legislation, accounting, modern management tools, how to correctly develop a development strategy, marketing, rules of the public and private sector of dialogue, problems of the tax system, permitting and licensing and many inspections by state bodies and structures (SCISPMRT, 2021b).

Analysis of the liquidation of entrepreneurship over the past ten years has shown a downward trend. According to the Agency on Statistics under the President of the Republic of Tajikistan (ASPRT), the largest number of liquidations of economic entities in the country was most noticeable in 2017, which amounted to 30300. In 2019 and 2020, the number of liquidated enterprises amounted to 25749 and 23897, respectively (ASPRT, 2021a). Figure 1.1 below depicts the number of registered and liquidated business entity trends in Tajikistan from 2010 to 2020.

Figure 1. 1 ***Number of registered and liquidated business entities (2010-2020)***

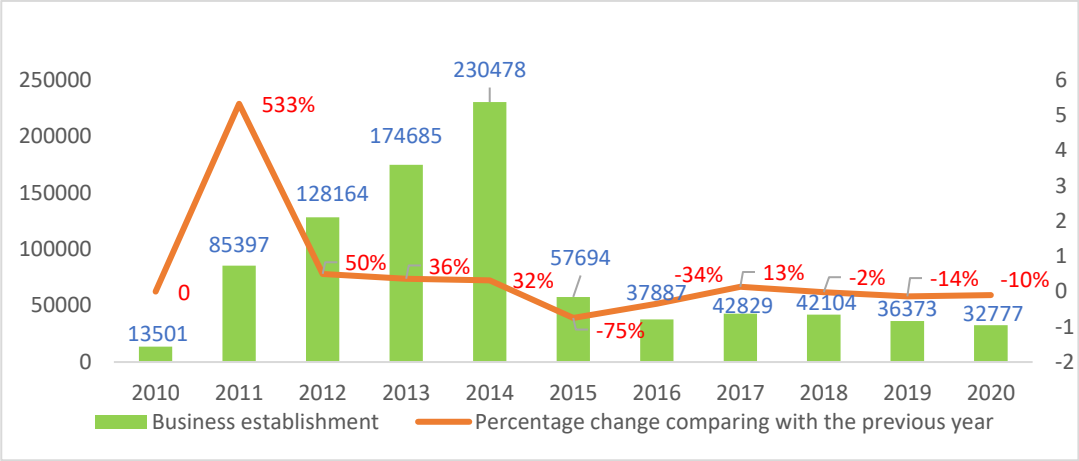


Note. Compiled by the author. Adapted from annual reports of the Agency on Statistics under the President of the Republic of Tajikistan. https://www.stat.tj/en/state-committee-on-investments-and-state-property-management-of-the-republic-of-tajikistan

Moreover, the statistics on business establishments in Tajikistan show that the number of business establishments is decreasing, and business shutdowns have been increasing for the past few years. According to the ASPRT, the number of business establishments in 2020 was 32777 which is 10.0% and 14.3% lower compared to the same period of 2019 and 2015 respectively [1] (ASPRT, 2021b). The figure below illustrates the trends in the number of business establishments in Tajikistan from 2010 to 2020.

[1] The number of business establishments in 2019 was 32122 and in 2015 was 57694)

Figure 1. 2 ***Number of business establishments (2010-2020)***



Note. Compiled by the author. Adapted from annual reports of the Agency on Statistics under the President of the Republic of Tajikistan. https://www.stat.tj/en/state-committee-on-investments-and-state-property-management-of-the-republic-of-tajikistan

The main obstacles contributing to the failure are low access to finances due to high-interest rates, inflation, the excess burden of taxation, a large number of inspections by government agencies and structures, bureaucratic arbitrariness in government agencies, lack of skills in preparing business plans, business strategies and business administration. (European Bank for Reconstruction and Development, 2020). All these obstacles lead to a lack of progress in entrepreneurial activity. Therefore, the survival and expansion of small businesses is one of the essential economic development sectors of any state.

In recent years the Government of Tajikistan has supported a better business environment, making important reforms in business inspections, permit and licensing spheres, registration of business establishments, export and import procedures and the financial sector (SCISPMRT, 2021c). As a result of these reforms the procedure of business registration has become easier. In addition, the number of inspections, permits and licenses declined, the cost of exporting and importing goods decreased and business access to finances increased.

To develop entrepreneurship further, the Government of the Republic of Tajikistan established the State Institution "Business Incubator" and its centers in Dushanbe, Kulyab, Bokhtar, Khorog, and Khujand in December 2018 (SCISPMRT, 2018a). This has led to an increase in the number of business establishments, startups, the improvement of entrepreneurs' skills in developing business strategy and effective business administration. These new public institutions are expected to enhance an increasing number of business entities, development of small and medium enterprises, establish industrial enterprises thus boosting economic growth, creating job places, and increasing people's incomes. Thus, the Government of Tajikistan intends to promote entrepreneurship, especially small and medium enterprise (SMEs) development by increasing the number of start-ups and preventing the failure of small businesses through supporting business incubation.

1.2 Statement of the Problem

According to Hernández & Carrà, (2016), business incubators have been recognized as essential mechanisms for a sustainable process of business development and governments in most countries allocate a lot of funds for the operation of business incubators (Hernández & Carrà, 2016). Moreover, the literature recognizes that business incubator centers have been able to reduce the chances of failure of small businesses and start-ups through supporting entrepreneurship activities (Hewitt & van Rensburg, 2020). Furthermore, in some countries, studies suggests that the government should allocate more budget for business incubators in order to improve economic circumstances and support entrepreneurial growth (Ahmed et al., 2020). Some other sources have

recognized that one of the major goals of BICs is to assist university students in establishing startup businesses to create new jobs and give a boost to the local economy (Allen & Mccluskey, 1990).

However, business incubation is in an early stage of development in Tajikistan, and the Government of Tajikistan allocates an insufficient amount of budget for its development. The BIs in Tajikistan are expected to be self-financed.

Development partners, including the UNDP, JICA, GIZ, the Center for Rural Development and Finance, and other development partners have allocated a significant amount of money for the development of business incubators. According to the report of (SIFDET, 2020) with the support of development partners such as UNDP, JICA, OSCE and others BIs in Tajikistan have conducted training courses among university students of the republic (SIFDET, 2021a). To realize their business ideas and innovations business incubators and techno parks that have been established under the supervision of universities are making great efforts to create favorable conditions for students and youth to reduce unemployment among these groups and to keep educated, talented and active graduates from leaving the country. According to a report by (SI FDET, 2021) now most residents of BIs are university students and young people who are talented, creative, and innovative (SIFDET, 2021b). However, the success, and the effectiveness of this type of institution is still uncertain and it is unclear whether BIs in Tajikistan are achieving their goals and precisely what their impact is on the growth of startups.

Myassoyed, (2019) states that although these initiatives are aimed at business development, most of the students and young people in Tajikistan are having difficulty putting their new ideas and skills into practice (Myassoyed, 2019). They need financial support, mentoring, coaching, office space, facility support to incubate ideas, and

connectivity with high-speed Internet so that they can seek and share entrepreneurial knowledge (Myassoyed, 2019). Moreover, the World Bank reported that only 10% of graduates could be employed after graduation, and another 30% need training support (Aliyev, 2020). Lack of these opportunities is a major reason why many young, talented, and promising people leave Tajikistan and build a career and business in developed countries.

1.3 Research Methodology

1.3.1 Methodological framework

The research methodology utilized in this study is mixed, that is, it employs qualitative and quantitative methods. By deploying a mixed approach, this study investigates the level of awareness of business incubators and the impact of incubation programs on entrepreneurial intention among university students in Tajikistan. Also, this study explores the effectiveness of the role of BIs through services to be provided by business incubators, and the challenges faced by business incubators in Tajikistan. In terms of the analytical procedures, this study first applies Binary Probit and Logit models to evaluate awareness about business incubators and the impact of incubation programs on entrepreneurial intention, following Xu et al (2020). Secondly, this study employs the Ordered Probit and Logit model to estimate the effectiveness of business incubators in providing infrastructure facilities, marketing services, training programs, networking, consultancy services, and business start-up, following Sedita et al., (2017). Additionally, this study notes that no research has been conducted on this context previously, and business incubators are still a relatively new phenomenon in Tajikistan. The techniques

applied in this study may then help Tajikistan's business incubation activities. Business incubator centers will, in turn, focus their assistance on entrepreneurs, young and graduated students who are talented with promoting entrepreneurship, developing SMEs, and creating new business start-ups. The recommendations of this study are likely to be of use to business incubators as a tool for promoting entrepreneurship and creating new business startup opportunities in Tajikistan.

1.3.2 Data collection

To this end, the author used a questionnaire as the primary means of data collection to survey and collect data from university students in fourteen universities across the Republic of Tajikistan. The survey was organized into three main parts with 5-10 questions in each part, focusing on different aspects of the respondents' such as awareness of incubation programs, the impact of incubation programs on entrepreneurial intention, and the effectiveness of business incubators on the growth of startups and challenges faced by business incubators. Some questions were designed using likert scales variables, others with categorical, or dummy options (e.g., Yes/No).

In this study then, the questionnaire employed is directed towards answering whether business incubators in Tajikistan can succeed and enable the provision of essential services to promote entrepreneurship development and create a new startup boom in the country.

This study also used secondary sources, such as information about government policy on entrepreneurship development, business incubation organization, and barriers and opportunities to business development. For instance, statistics from government

agencies, NGOs, business associations, and private entities were analyzed as important sources for this study.

1.4 Research Objectives

1.4.1 General Aims

The overall aim of this research, then, is to explore the following objectives:

i. Identify the level of students' awareness about the existence of incubation programs in the Republic of Tajikistan.

ii. Determine the impact of incubation programs on entrepreneurial intent among university students.

iii. Analyze the effectiveness of business incubators for the growth of startups through the services offered by the business incubators.

iv. Determine the main challenges faced by business incubators in servicing and recommend actions to tackle them.

1.4.2 Question and hypothesis

This thesis aims to investigate the following broad research question: What is the level of student's awareness about existence of incubation support in Tajikistan? To address this question, this study proposes the following sub-questions.

i. What is the level of student awareness of incubation programs?

ii. What is the impact of the incubation programs on the entrepreneurial intention of university students?

iii. Are the services provided by BIs effective for the growth of startups?

iv. What are the main challenges faced by business incubators?

With the above in mind, this study will propose the following hypotheses for testing:

i. Firstly, it is likely that students majoring in entrepreneurship in universities have a higher level of awareness about incubation than those not majoring in this field.

ii. Secondly, incubation programs will have a significant influence on the entrepreneurial intention of students.

iii. There is a significant relationship between infrastructure facilities support, marketing services, training programs, networking services, consultancy services and the effectiveness of business incubators on the growth of startups.

iv. Financial challenges that are faced by BIs will have negative influence on growth of startups.

1.4.3 Significance of the study

This thesis is a fundamental step towards evaluating the entrepreneurial awareness of and skills for business incubators in Tajikistan. The thesis will also explore the effectiveness of business incubators and the challenges faced by business incubators in Tajikistan, which may lead to business incubators delivering and reaching their objectives and generating new businesses among the country's young population. Thus, the results of the research may improve the performance of BIs in Tajikistan. Additionally, an assessment framework for evaluating business incubator activities will be developed and may serve as a reference for the government of Tajikistan.

1.5 Limitations

It is complicated to determine the levels of student awareness of business incubators in Tajikistan because first State Institution of Business Incubator in Tajikistan was established in 2018 and they are a new phenomenon. Furthermore, there is practically no research in this field. and the researcher has minimal access to information about BIs in Tajikistan. Therefore, the author could not identify any current literature about creating new business start-ups in Tajikistan. Moreover, information on BIs in Tajikistan was not available on official public websites. Also, the process of gathering information randomly by surveys from large numbers of students is complicated due to COVID – 19. Consequently, the researcher will analyze the results of the findings based on surveys and data from available websites in Tajikistan.

1.5.1 Organization of the thesis

This thesis will be organized into seven main sections, beginning with the introduction in Chapter 1, followed by a review of the relevant literature in Chapter 2. Chapter 3 will present overview of business incubators and entrepreneurship in Tajikistan. The literature will form the basis for the methodology presented in Chapter 4. Chapter 5 will deal with the results of the survey and Chapter 6 will present the findings, and analysis and discussion of survey results. Finally, Chapter 7 will present conclusions and recommendations for further research in the area of business incubator development in Tajikistan.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter provides background on the major themes of this research, including the history and development of business incubators; the impact of business incubation on entrepreneurial intention; the role, challenges and effectiveness of business incubators, and the current state and development of entrepreneurship in the Republic of Tajikistan.

2.2 Theoretical context, history and development of business incubators

The history of BIs can be traced to the middle of the twentieth century, when unemployment rose during the Great Recession in the United States and Europe, leading to a major collapse of traditional industries. During this period, there was a recognition in both the United States and Europe that new strategies were required to restore levels of income in traditional industries and enhance entrepreneurial activity in the economy (Li et al., 2020).

According to William et al. (2015), the first BI was opened in New York, in the United States, by Joseph Mancuso, and the first BI recognized in the United States was the Batavia Industrial Center. They suggest that business incubation has grown simultaneously with the high technology industry in the United States (William et al., 2015).

Campbell & Allen (1987) recount that generally, business incubators spread to Europe and the UK at the beginning of 1980 (Campbell & Allen, 1987). In these

countries, the model of business incubators was the same. Also, they argued that business incubators appeared as a result of two parallel movements. Firstly, there was division of old empty buildings by local architects with "working communities" of design firms who shared premises, services, and management (first designed by David Rock at Covent Garden, London, in 1972) as well as the reconstruction and reuse of old buildings as workshops for craftsperson's and artisans (Campbell & Allen, 1987). Additionally, they noted the following wave of "hatchery" progress in the UK was in reaction to the closure of enterprises (Campbell & Allen, 1987). The British Steel Corporation created a fully owned subsidiary, and many other private corporations, such as community organizations, national and regional governments, and universities financed incubators in Western Europe and the United Kingdom.

The National Business Incubation Association (NBIA 2014) reported that until 1970, the creation of new businesses was less of a priority in the United States, but in the 1980s, the number of business incubators increased at a high rate and approximately 12 incubators were established cited in (Jamil et al., 2016). According to the report of NBIA, 2015 the incubators' development increased from approximately 20 openings a year in 1984 to over 70 in 1987, and membership had increased from about 40 members during the first year and to about 1600 members in 2006 (National Business Incubation Association, 2014). Therefore, business incubation has become an increasingly common phenomenon all over the world.

Moreover, the NBIA, (2017) reported that there are approximately 17,000 business incubators of different types around the world that cited (Shouvik, 2018). Out of these, approximately 1,400 business incubators were located in North America (1,400 in the US, 120 in Canada, 400 in Brazil, and 191 in Mexico), 1,000 in Europe, from about 400

in Germany, 250 in the United Kingdom, 300 in France, 1500 in East Asia, including 400 in China, 355 in Korea and 265 in Japan cited in (Dobson et al., 2017).

Overall business incubation generation consists of three main worldwide trends and periods (Directorate-, 2002), and the worldwide trends and incubation generation have driven strategic changes (Scaramuzzi, 2002). These three main trends are summarized below.

First Generation. The concept's initiation and growth (end of the 1950s to the middle of 1980s) period was called the "economies of scale in infrastructure." Business incubation programs grew to be a well-known device for making modern new companies that did not have marketing, managerial and other business knowledge. This was because office space and several shared facilities were not sufficient. Experience with business incubators demonstrated the need for different trades to bolster their administration (for example, by introducing mentoring, training, coaching, and other skills-based administrative services) (Directorate-, 2002). Moreover, the first generation of business incubators provided mostly office space and access to different capital resources (Lalkaka Rustam and Jack Bishop, 1996). Furthermore, first-generation incubators created the conditions for generating new employment and increasing real estate value (Aerts et al., 2007). These developments contributed to the second generation of business incubators.

Second generation. This was a period of active development and growth (the middle 1980s/1990s) that is referred to as the "business support: speeding up the learning" period. With the rapid evolution of information technology, communication, and technologies, enterprises could solve problems faster than a few decades earlier. Asset shortages such as getting insufficient access to capital, skill, and information,

which were bottlenecks of start-ups, were exceptionally vital. These might be partly developed through business incubator networking services (Directorate-, 2002).

Scaramuzzi, (2002) called the second generation of business incubators virtual incubator (Scaramuzzi, 2002). She broadly defines virtual incubators as non-real estate businesses that require less capital investment and are a possible way to serve SMEs in regions with a lack of critical mass (Scaramuzzi, 2002). Virtual incubators are frequently organized under the incubation centers or university and are defined by their ability to work both inside walls and outside. This kind of incubator, that exists in many countries, especially in Russia, Australia, and Brazil, operates without walls and helps newly created companies that are outside the territory of the incubator. They usually create externalities among connected companies using telecommunications networks and computers (Scaramuzzi, 2002).

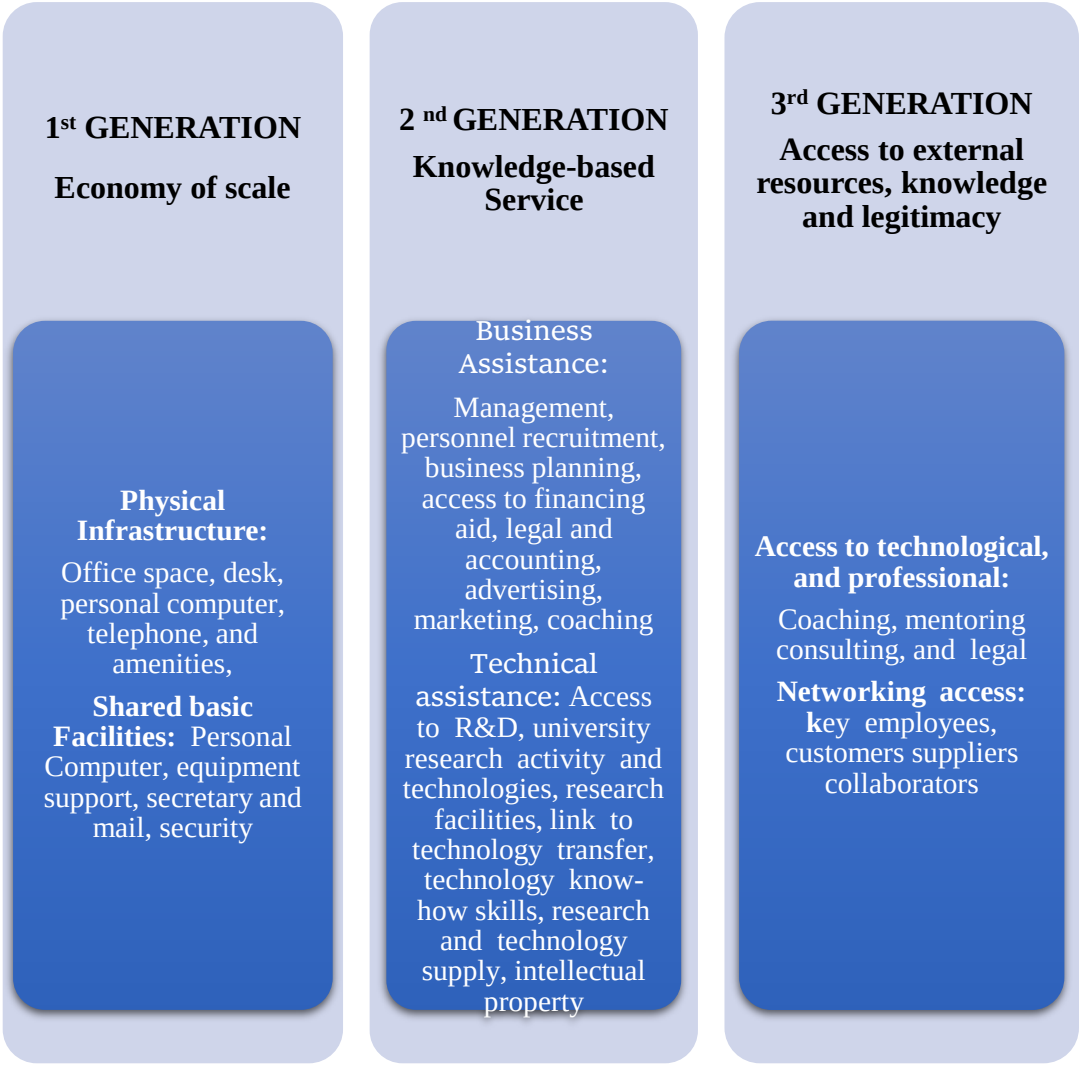
According to Aerts et al. (2007), the services were widened to access networks, training sessions, consultative services, and venture capital in the second incubator generation (Aerts et al., 2007). In this way, a third generation emerged.

Third Generation. This involved industry growth and newborn development leaps (mid 1990s-present) (Scaramuzzi, 2002). The most popular features of that time are Networks & Value Chains. Entrepreneurs are constantly under pressure from their competitors and market (Scaramuzzi, 2002). They are constrained by each other to decrease time to markets, integrate their products, and establish partnerships and services into existing chains of value. Therefore, networks have become popular. The development of Information and Communication Technology (ICT) has been characterized by rapid technological progress that has led to new concepts in networked incubators and virtual incubators. Business incubators have spread widely around the

world from the United States to Europe, Europe to Africa, and from Latin America to Asia (Scaramuzzi, 2002).

Aerts et al., (2007) noted that within the late 1990s, the third generation started to set up a classification that is very similar to the company hatchery continuum, concentrating on promising start-ups within the ICT and high-tech ventures (Aerts et al., 2007). Scaramuzzi, (2002) points out that the third generation of incubators offers a whole spectrum of services to support knowledge-based business development (Scaramuzzi, 2002). She mentioned that the majority of incubators are export-oriented and demonstrate spectacular rates of growth and record sales and they connect venture capital, research institutes, universities, and international joint ventures (Scaramuzzi, 2002). This kind of incubator model exists already in China, Korea, and Malaysia and networks of incubators or incubators in one area or country are starting to be established for the same purpose (Scaramuzzi, 2002). Figure 2.1 below summarizes the development of business incubation based on generations, as identified by Indiran et al. (2021) in this chapter. Figure 2.1 below summarizes the distribution of business incubation propositions based on generations.

Figure 2. 1 ***Business incubation value proposition based on generations.***



As Figure 2.1 shows, several global trends, including breakthroughs, technological revolutions, and challenges are a few of the factors that contributed to the establishment of business incubators to nurture young startups to expand and accelerate their business development. While it is generally accepted that incubation models have developed over time, many people still are unaware of the value propositions and services provided by business incubators that have emerged over the past decades (Indiran et al., 2021). With this in mind, this section considers the evolution of business incubators to provide essential background, drawing on various sources comprehensively.

2.3 The impact of business incubation on entrepreneurial intention

This section reviews research concerning the impact of business incubation on entrepreneurial intention and other critical factors.

A number of studies investigated (Hoang et al., 2021, Lv et al., 2021, Cera et al., 2020) the role of entrepreneurship education in promoting entrepreneurial intention among university students, but only a small number of studies have revealed the contribution of business incubators in fostering entrepreneurial intention among University students. A study by Li (2019) that focused on the role of business incubators in promoting entrepreneurship along with entrepreneurship education, stated that entrepreneurship education and business incubation directly influence students' entrepreneurial intentions. According to Li's findings, entrepreneurial self-efficacy also influences the relationship between entrepreneurship education, business incubation, and entrepreneurial intention of students (Li, 2019).

The same conclusion is reached by Zreen et al (2019), who investigated the role and influence of business incubation programs and internship programs on entrepreneurial intention among university students in Pakistan (Zreen et al., 2019). Zreen found that business incubation programs and internship programs have a significant and positive influence on the entrepreneurial intention of students (Zreen et al., 2019). Furthermore, another study by Jansen et al., (2015) found that incubation programs significantly impact entrepreneurial intent, implying that the more enthusiastic students are about participating in BI programs, the more likely they are to start a business (Jansen et al., 2015).

These positive effects of business incubators on entrepreneurial intent are supported by the findings of other studies into the early or pre-incubation phase (see Giordano Martínez et al., 2018), the validation of student's business ideas (e.g., Olokundun et al., 2019) and the quality of incubator programs on entrepreneurial success (Eka Yusendra et al., 2019).

While most research is overwhelmingly positive on the impact of business incubation programs on entreprenerial intention, some studies return mixed results. One study on the impact of business incubation programs among students of Jenderal Soedirman University, Indonesia, and Debrecen University, Hungary, for example, shows that business incubation programs do not significantly impact university students' intention to start a business (Gal, 2020). The same study also discovered that Indonesian students, when compared to Hungarian and other group of students have the least confidence in the impact of business incubator programs (Gal, 2020). Gal also argues that students in Hungary have more confidence in on-campus incubation and coaching programs and these positively affect their intention to establish a business. This suggests that students in Hungary have a higher level of belief in their campus business incubator programs than students in Indonesia.

Many recent studies (e.g., Kamil, 2021, Xu et al., 2020, Setti, 2018) suggest that, along with entrepreneurship education and business incubation programs, other factors such as motivation, age, gender, profession, education level, family occupation and family income, entrepreneurial skills, and experience significantly affect the entrepreneurial intention of students. In line with this, Baidi & Suyatno (2018 found that along with entrepreneurship education, factors such as self-efficacy and need for

achievement positively influence students' entrepreneurial intentions (Baidi & Suyatno, 2018).

Finally, this study would like to point out that in Tajikistan, the concept of business incubators is very new and is still in an early stage of development. BIs are having a significant influence on youth and university students by promoting entrepreneurship development in Tajikistan. Along with the services provided by BIs, some key universities in Takijikstan have taken the initiative and established their own business incubators and technoparks.

2.4 An empirical review of the role, and effectiveness of business incubators

A large body of research exists that shows the positive effect of the roles and effectiveness of business incubators on promoting entrepreneurship development. Firstly, Mahmood et al., (2017) analyzed a sample of 42 entrepreneurs in Pakistan, applying a structured questionnaire to investigate the effectiveness of the role of BIs for entrepreneurship development. Utilizing Cronbach's Alpha, they assessed the significance of the role of BIs in providing networking services and consultancy services to entrepreneurs. They showed that when business incubators work harder, they can deliver the desired results while providing training, infrastructure, and marketing (Mahmood, Jamil, et al., 2017).

Secondly, based on the survey data from 567 university students Li et al., (2020) explored the role of BIs in entrepreneurship development in Pakistan. Using the Structural Equation Model, they found a significant effect of the moderating role and effectiveness of BIs in providing networking services, financial support, and training

programs to entrepreneurs and individuals, which provides significant evidence for the development of entrepreneurship (Li et al., 2020). Moreover, research in Pakistan found that business start-ups mediate the relationship between networking services, financial support, training programs, and entrepreneurship development. Additionally, they found that government regulations had positive moderating effect on business start-ups and entrepreneurship development (Li et al., 2020). They found that the government should consider creating a one-stop shop for managing business incubators across the country and coordinating the activities of all institutions and businesses starting a new business. In addition, because most startup companies today have a service-based business model, the government must look at establishing an industrial incubator that will boost production (Li et al., 2020).

Likewise, another study by Ahmed et al., (2020) on the role and effectiveness of BIs as a service provider in entrepreneurship development, analyzed the effecticeness and impact of business incubator services on entrepreneurship development. Based on a survey of 245 graduate and post-graduate students who participated in incubation programs, the researchers found that networking services, capital support, and training programs had a positive effect on entrepreneurship development (Ahmed et al., 2020). This study suggests that the government must give special attention to financing, lower taxes on technology imports, enhance infrastructure, and develop a training program in partnership with business incubators. Additionally, the government should allocate sufficient budget to support business incubators to improve economic circumstances and support entrepreneurial growth (Ahmed et al., 2020).

Furthermore, a study by Mahmood, et al., (2017)) on the role and effectiveness of business incubators in supporting startup survival and growth in Pakistan researched the

effectiveness of different services and facilities provided by business incubators. Mahmood's methods included Reliability, Correlation, Regression, and Chi-Square Analysis and data obtained from new startups in seven business incubators in Pakistan (Mahmood, et al., 2017).

In their analysis of business incubators Sedita et al., (2017) researched the effectiveness of business incubators on the innovation performance of start-ups using data from start-ups working as mechanical engineers or as knowledge-intensive business services industries in Northern Italy. Utilizing the Ordered Probit and Logit model, they found that firms that have been working in business incubators for some time show the best innovative performance compared to other startups firms; business incubators play a moderating role by increasing the effect of internal capabilities on the innovation activities of startups, especially, on technology and ICT; Business incubators positively moderate the impact of the breadth of collaboration on innovation productivity when startups report an intermediate level of collaboration breadth (Sedita et al., 2017).

Utilizing survey data from 34 business incubator services Shahzad et al., (2012) investigated the importance and effectiveness of business incubator services among women entrepreneurs in Pakistan. Using Cronbach's Alpha and data obtained from a Women's Business Incubation Center with the Likert-type questions, the authors discovered that infrastructure facilities, training programs, marketing services, and networking services are important and very useful for the success of businesses. The results show that for women entrepreneurs, facilities services are more effective for their business's success (Shahzad et al., 2012a).

In addition to this, another empirical study on the key factors for the success and effectiveness of business incubators in Europe used quantitative methodology and

ANOVA and regression analysis for data analysis to understand the main factors for the success and effectiveness of business incubators (Alpenidze et al., 2019). The paper observed that three main factors have a positive effect and strong relationships for the success and effectiveness of business incubators, such as the availability of external financial resources, the availability of internal resources and capabilities, and the existence of social and business networks (Alpenidze et al., 2019). Moreover, the author recommended that the following strategies should be implemented to increase the efficiency and effectiveness of business incubators.

1. Firstly, in each free economic zone, technology parks or research parks should establish a business incubator. While free economic zones and technology or research parks primarily provide physical infrastructure, business incubators will help enterprises succeed by providing networking services, mentorship, and training programs.
2. Secondly, the incubation model should be tailored to the local structure to improve entrepreneurship and economic growth (Alpenidze et al., 2019).

Even though some research demonstrates that limited funding is the main challenge in business incubators, most respondents are satisfied with achieving their goal of participating in such programs, confirming the effectiveness of business incubators (Lose et al., 2016). Based on survey data from 28 representatives of SMEs in South Africa, the study's findings suggest that the government should increase and direct more funding towards business incubators and attract only targeted entrepreneurs to its programs to enable a smooth and timely exit. Firstly, the authors' recommendation is that BIs should be staffed with employees who have the appropriate skills to solve their clients' problems. This can also lead to ongoing assessment and training of incubator

staff. Secondly, incubation managers who do not have the necessary entrepreneurial skills should be encouraged to take business courses at local colleges or universities (Lose et al., 2016).

A study by (Mahmood, Jianfeng, et al., 2017) on the role and effectiveness of business incubators in sustaining startup survival and growth in Pakistan researched the effectiveness of different services and facilities provided by business incubators. Utilizing Reliability, Correlation, Regression, and Chi-Square Analysis data collected from new startups in seven business incubators in Pakistan. The empirical findings reveal that the different services provided by business incubators such as facilities services, financial support, network opportunities, research on technology and development and its sources, research development and projects, and incubator business objectives produce significant positive effects on an incubator's performance for startups growth. Based on these findings, they also found that the incubators' performance significantly affects the survival and growth of startups (Mahmood, Jianfeng, et al., 2017). In short, business incubation is one of the mechanisms that can create new opportunites for innovation and entrepreneurship and is of great utility in supporting the the development and survival anf growth of startups.

As mentioned in the previous sections, despite making great efforts to develop business incubators in Tajikistan, their effectiveness is still uncertain and there is limited information on whether BTs in Tajikistan are achieving their goals or their impact on the growth of startups. The focus in this study, then, is on the students who participated in incubation programs, to determine whether the services provided by BIs in Tajikistan are effective for the growth of startups or not. To do so, it is necessary to identify which services provided by business incubators in Tajikistan are effective by conducting an in-

depth survey of BIs and by utilizing the Ordered Probit model to assess the data and determine the effectiveness of BIs.

2.5 Challenges of Business Incubators

A few studies have been published that demonstrate the challenges faced by business incubators. Based on data from surveys Choto, (2015) found that those entrepreneurs who found that incubation programs encounter fewer obstacles and challenges and have more access to finance and business networks than those who do not (Choto, 2015). The results of this study show that lack of access to scientific and technical information, supporting infrastructure, and adequate skills are business incubators' main challenges when helping surviving entrepreneurs. Similarly, in their study, (Bigirimana et al., 2015) found the same challenges affect business incubators, including financial constraints, lack of physical space, a lack of skilled staff, and lack of infrastructures such as roads, electricity, and telephone connections (Bigirimana et al., 2015). Similarly, a study by Lose & Tengeh, (2015) that focuses on issues of sustainability and other challenges faced by business incubators in South Africa states that a lack of sponsorship and funding, advanced technological facilities, production space, and expansion into new areas are the main challenges faced by business incubators (Robertson K Tengeh, 2015).

Likewise, another study by Jansen et al. (2015), who investigated the challenges and opportunities of incubation programs, identified two challenges. Firstly, the incubation models designated as high technology incubators, had a positive influence on the expansion of technology sectors in various countries by providing new services and

new products. Secondly, encouraging and supporting entrepreneurship and innovation creates the best conditions for the growth of businesses and for the launching and accelerating of smart growth.

However, between all the challenges that have been identified, (Nani, 2004) notes that lack of access to scientific and technological knowledge, unconducive economic environments, inadequate financial resources, lack of adequate infrastructure, and unavailability of qualified staff are predominate (Nani, 2004).

CHAPTER 3: OVERVIEW OF BUSINESS INCUBATORS AND ENTREPRENEURSHIP IN TAJIKISTAN

3.1 Overview of Business Incubators in Tajikistan

As mentioned above, the history of business incubators in Tajikistan is relatively short. The mechanism and structure of business incubators and the practices used in other countries are significantly different from those in Tajikistan. In Tajikistan, most donor organizations, development partners, and business associations also carry out activities that are like business incubators through some short-term projects. For instance, the WB, JICA, UNDP, DGIZ, Center for Rural Development and Finance (CRDP), and the Business Incubator of the National Association for Business Women (NABW) led the way in promoting entrepreneurship by organizing training and workshops to encourage young men and women to start small businesses.

The UNDP has a long history of assisting Tajikistan's government in promoting sustainable economic development by increasing productivity and marketability, skills training, job creation, and entrepreneurship development, especially targeting young men and women in the country (UNDP, 2021). In 2016, the UNDP, together with the support of other organizations, created an idea pitching platform called the "Choikhona Startup" in Tajikistan (UNDP, 2021). The Startup platform allows aspiring entrepreneurs to submit their business ideas through an open competition (UNDP, 2021). This platform provided business training for more than 700 talented students and young people (UNDP, 2021). According to a UNDP report, training and incubation programs were held for the above-mentioned participants, and they were taught how to create their own business ideas. As a result, more than 400 young people have benefited and developed 147 startup project ideas in less than two years (UNDP, 2021). Moreover, the UNDP, (2021) reported that in 2021, during a 16-week period, 64 students (43 male and 21 female) participated in business modules led by leading entrepreneurs and top managers of the leading companies. Each week a new topic was covered with the sessions held in co-working spaces, the offices of leading companies, and incubation programs (UNDP, 2021).

Furthermore, over the past five years, several platforms were established to support emerging entrepreneurs with incubation and mentorship, such as Startup Eco-system Summit, Startupstan Cup, Startup Central Asia, Digital Camp, Upshift, Tech Central Asia Weekend, and Global Entrepreneurship Week. Young people made these platforms for promoting startup growth by linking ideas to mentors, investors, and policymakers (Aliyev, 2020).

The first business incubator was established by the National Association of Business Women of Tajikistan (NABWT) in 2013 (Europian Comission and GmbH, 2013). This business incubator has provided training courses on business basics to more than 500 young women, especially students in the Sughd and Khatlon regions, cities, and districts of the republic (National Association of Business Women, 2021). Alongside these some of the key universities in Tajikistan have taken the initiative and established their own business incubators and techno parks near university campuses (Mengliev, 2020). The common factor is that these universities' incubators and technological parks aim to replicate the activities seen in the Institution of Business Incubator of Tajikistan and offer specific training programs to help graduates and undergraduates develop their skills and produce concrete results. However, university-based incubators currently have different models and sizes, in terms of the types of initiatives compared to conventional incubators. These incubators and techno parks tend to encourage the development of new technology or innovation within their facilities (Mengliev, 2020).

To develop entrepreneurship further, in 2018 the Government of the Republic of Tajikistan established a State-sponsored "Business Incubator" (SIFDET) with centers in Dushanbe, Kulyab, Bokhtar, Khorog, and Khujand (SCISPMRT, 2018b). This has had the effect of increasing the number of business establishments, startups, improvement of entrepreneurs' skills in developing business strategy and effective business administration. These new public institutions are expected to increase the number of business entities, develop small and medium enterprises, and establish industrial enterprises, thereby giving a boost to economic growth, job creation, and an increase in people's incomes.

Therefore, the Government of Tajikistan intends to promote entrepreneurship, especially SMEs development by increasing the number of start-ups, and preventing the failure of small businesses through supporting business incubation.

The State Business Incubator is currently operating in Dushanbe, including branches in Khujand, Kanibadam, Khorog, Bokhtar, and Kulyab. They provide support to young entrepreneurs and new start-ups in the early stages (SIFDET, 2022a).

Currently, the SIFDET is organizing educational events, training sessions, and masterclasses throughout Tajikistan, most notably in regional areas of the country, to promote entrepreneurship and establish concrete goals (SIFDET, 2022b). One of the essential tasks of the BIs is to support innovative concepts, the ideas of young startups, and women's entrepreneurship through incubation and acceleration, consultation, and finding financial resources for realizing their business projects (SCISPMRT, 2021d).

According to (Aliyev, 2020), when young entrepreneurs and startups become residents of business incubators, they will be enrolled in incubation programs for a period of 3 to 12 months. During this period they can receive help to develop their business ideas, prepare a concept launch and present it to private investors and international donors (Aliyev, 2020).

According to a SIFDET report in 2022, the number of students who work directly with the business incubator and have participated in training events and incubation programs is more than 500 students (SIFDET, 2021c).

In summary, through development partnerships, business incubators in Tajikistan have been able to begin the process of developing students' entrepreneurship culture through training and practical support mechanisms. During three years of activity, the BIs in Tajikistan have conducted many training and incubation programs among most

university students in Bokhtar, Kulyab, Khujand, Khorogh, and Dushanbe city with some success so far.

3.2 Formation and development of entrepreneurship in Tajikistan

The formation and development of entrepreneurship in Tajikistan began during the first years of independence - during the most severe commodity shortages, hyperinflation, and a decrease in the population's living standards (Library of Congress – Federal Research Division, 2007). In a critical and challenging situation and civil confrontation that occurred in the early 90s in Tajikistan, most large enterprises discontinued functioning, and hundreds of thousands of people lost their jobs (Kuddusov, 2011). Because the economy was dominated the state, no legislative base for developing market relations existed (Kuddusov, 2011). The laws in force were repressive concerning private property and entrepreneurial activity (Strokova & Ajwad, 2017). Before the transition to a market system, the fundamental basis of the economy of Tajikistan was manufactured goods, and small business was not included in the sphere of state interests (Kuddusov, 2011). However, during the period of transformation of the planned economy, small and medium-sized businesses have become one of the main instruments for implementing the state's strategic objectives (Kuddusov, 2011).

It is also important to point out that significant attention was paid to the development of entrepreneurship in the Republic of Tajikistan even during the difficult years of the civil war, which was reflected in the adoption by the Government of the Republic of Tajikistan of several laws and regulations (Sangakov, 2004). In particular,

the Law "On Joint Stock Companies" was adopted, in 1991, "On Foreign Investments," in 1992, "On Enterprises," in 1993, and "On Property in the Republic of Tajikistan in 1996 (Sangakov, 2004).

Moreover, in this process, the Comprehensive Program of Economic Reforms for 1995-2000 was adopted, which aimed to liberalize the economy, overcome the global crisis process, create favorable conditions for structural reforms including macroeconomic stabilization, and create a legal framework for a market economy (SCISPMRT, 2021i). On this basis, on August 14, 1997, the Agency for the Support and Development of Small Business under the Government of the Republic of Tajikistan was established to create an infrastructure supporting business in the public administration system (SCISPMRT, 2018c). As a result of the restructuring of public administration, the Agency was reorganized in 2001 into the State Agency for Antimonopoly Policy and Entrepreneurship Support under the Government of the Republic of Tajikistan, and in 2006 it transformed into the State Committee for Investments and State Property Management of the Republic of Tajikistan which is authorized to implement and promote state policies for the protection and support of entrepreneurship (SCISPMRT, 2018d).

To create favorable conditions for the development of entrepreneurship, the government introduced state regulation of the industry, and created a State Fund for Financial Support of Small Business by means of a microcredit system. On February 20, 1998, the Government of the Republic of Tajikistan introduced the State Program for the Support and Development of Entrepreneurship (SPSDE), which is the first regulatory legal act to support entrepreneurial activity during the years of independence (International Finance Corporation Partnership Swiss, 2013).

In order to regulate public activity concerning the protection, support, and development of entrepreneurship by the state, as well as the provision of state guarantees to business entities in 2002, the Law "On State Protection and Support of Entrepreneurship in the Republic of Tajikistan", was adopted by taking into account the experience of developed countries and the current situation in the country (United Nation, 2003).

In order to create favorable conditions for doing business, in April 2012 the Government adopted and implemented the "State Program to Support Entrepreneurship in the Republic of Tajikistan for 2012-2020" (MJRT, 2012). As part of the implementation of this program in 2014, a revised Law of the Republic of Tajikistan, that is, "On State Protection and Support of Entrepreneurship" was adopted considering international experience (SCISPMRT, 2021f).

According to this law, the state protects and support entrepreneurship from business registration, taxation, licensing and licensing, verification of business entities, property registration, reporting, antimonopoly regulation, simplification of import and export operations, lending. The moratorium is carried out by several state bodies. Also, as part of the Action Plan for implementing the Program, several legislative acts aimed at improving the business environment were adopted and implemented (SCISPMRT, 2018i).

To sum up, it can be said that the business sector has taken a prominent place in Tajikistan over the years of market reforms. Most of the strategic goals have been achieved, and the opportunity to engage in entrepreneurship has become a real and integral part of the constitutional rights of citizens of the republic. In this sphere, the government of Tajikistan has created the necessary conditions.

3.3 Overview of the current situation of entrepreneurship in Tajikistan

Entrepreneurship is recognized as an essential pillar of the economic structure. It plays a pivotal role in the overall economic development of countries and supports the generation of revenue, the creation of jobs, the alleviation of poverty, and the creation of wealth (Ahmed et al., 2020). Therefore, entrepreneurship, with its distinctive characteristics, can make innovation a new, effective, and valuable product and service and support the economic development of a country Li et al., (2019).

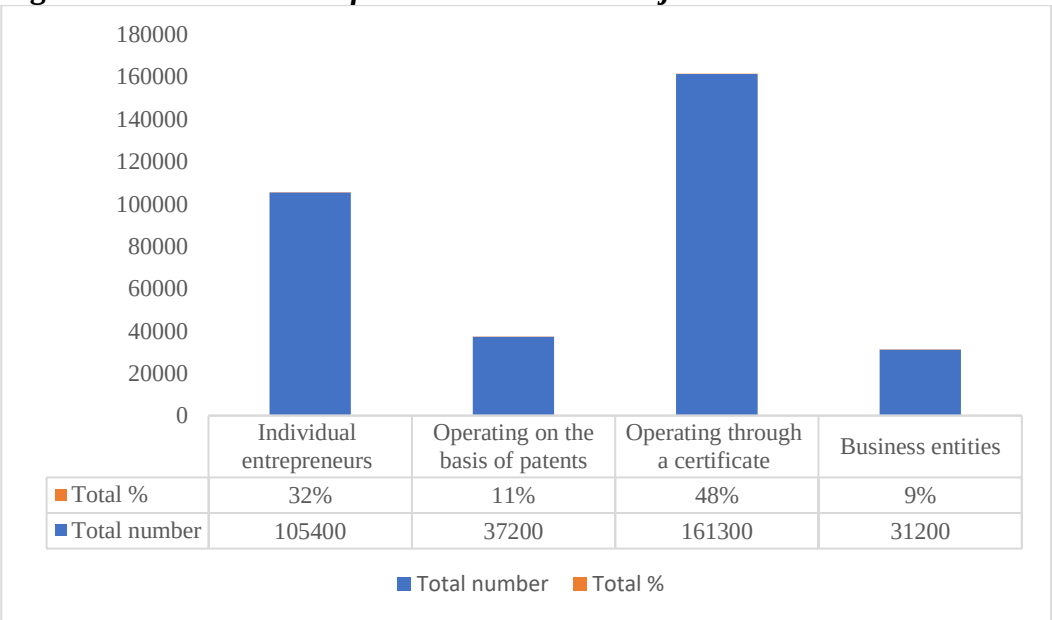
The development of the private sector through business support and improvement of the investment climate is one of the essential policy initiatives of the Government of the Republic of Tajikistan. Since its independence, legislative reforms have been conducted to support entrepreneurship and attract more investment in the country's economy. In particular, the simplification of registration procedures for legal entities and individual entrepreneurs, verification of business entities, licensing, public-private dialogue, the establishment of legal and economic partnerships between the state and the private sector, the formation of the tax system, and others are some of the important reforms that have given significant impetus to private sector development.

The Government of Tajikistan has identified the development of the private sector, entrepreneurship, and investment in the National Development Strategy for the period up to 2030 as critical tools for achieving national goals (NDSRT for period up to 2030c).

According to the data of the Agency on Statistics under the President of the Republic of Tajikistan, in 2020, 335, 300 business entities were registered in the country, which is 8800 entities or 2.7 percent more than in 2019 (ASPRT, 2021c). The majority

of the currently operating business entities in the country are individual entrepreneurs who are comprised of 304040 or 90.6% of business entities (ASPRT, 2021d). Of this number, 105400 entities or 32.0% are entrepreneurs operating based on patents, 37200 or 11.0% act based on certificates, and 161300 or 48.0% are dehkan farms. Since dekhkan farms are also treated as individual entrepreneurs, they are therefore included in the total number of individual entrepreneurs. Legal entities, which form the backbone of the country's private sector, have a very small share in the total number of economic entities, amounting to only 31200 units or 9.0 percent of business entities (ASPRT, 2021e). Figure 3.2 below summarizes the percentage and types of business entities in Tajikistan.

Figure 3.2 ***The structure of business entities in Tajikistan***

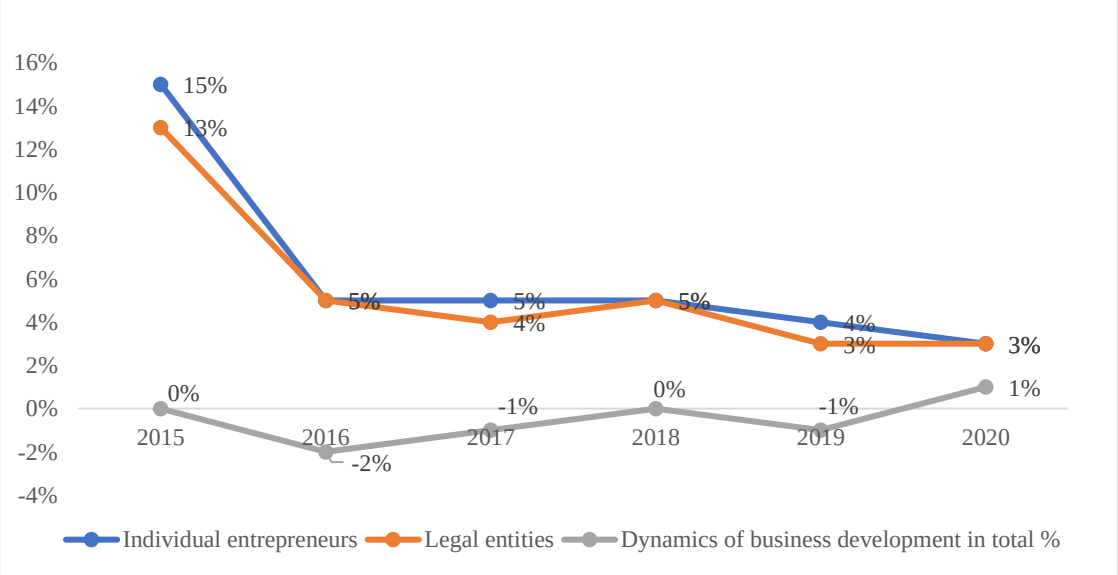


Note. Compiled by the author. Adapted from annual reports of the Agency on Statistics under the President of the Republic of Tajikistan. https://www.stat.tj/en/state-committee-on-investments-and-state-property-management-of-the-republic-of-tajikistan

According to the Statistics Agency of Tajikistan, more than a third of the business entities of the country are individual entrepreneurs operating under a patent, with an

annual turnover of up to 100000 somoni. Individual entrepreneurs who are working under patent work in small businesses, indicating the limited business access to financial instruments (ASPRT, 2021f). Meanwhile, a significant proportion of agricultural or "dekhkan" farms, 48% of the total number of economic entities involved in the development of entrepreneurship mainly in rural areas, face limited access to physical infrastructure, financial instruments, agricultural machinery, quality seeds, and remoteness from consumer markets (ASPRT, 2021g). The dynamics of business development for the period 2015 to 2020 are shown in the Figure 3.3 below.

Figure 3.3 ***Dynamics of business development in Tajikistan (2015-2020)***



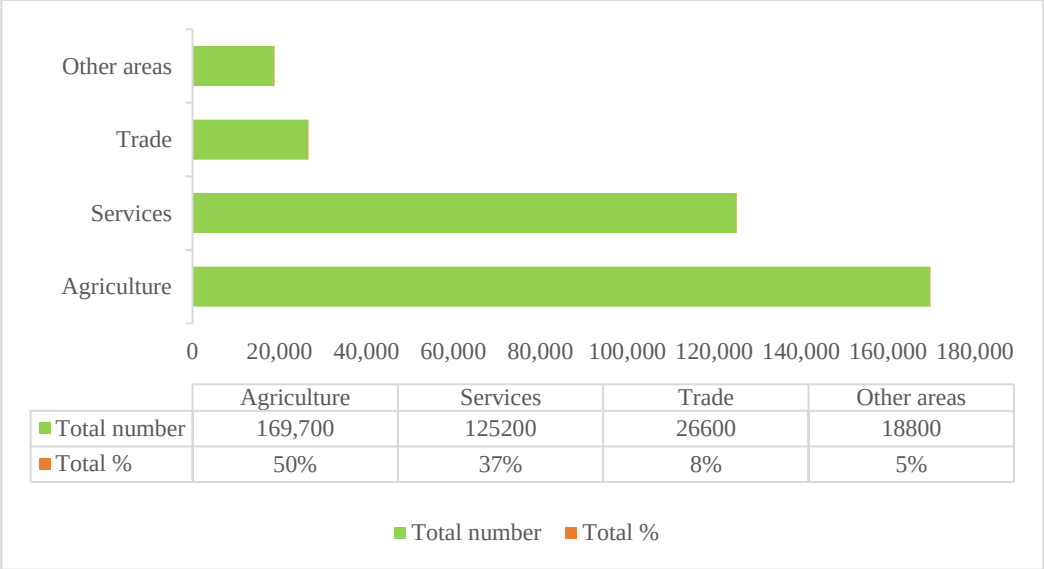
Note. Compiled by the author. Adapted from annual reports of the Agency on Statistics under the President of the Republic of Tajikistan.https://www.stat.tj/en/state-committee-on-investments-and-state-property-management-of-the-republic-of-tajikistan

From the above chart, it is possible to see that the growth rate of entrepreneurship development during 2015-2020 tends to decrease (ASPRT, 2021h). As the trend in legal entities shows (see the orange line), in 2015 the growth rate of entrepreneurship was 13%, then in 2016 and 2017 it was 5%, and in 2020 it decreased further to 3%. Considering the dynamics of business development during the period from 2015 to 2020,

the upward trend in the number of legal entities indicates an overall decrease in this indicator. The total number of legal entities in 2015 amounted to 32,200 and in 2020 dropped to 31,200 which is a decrease of 3.2% (ASPRT, 2021i).

The analysis of business entities showed that as of 5 January 2021, business entities in Tajikistan were mainly engaged in agriculture 169700 units (or 50%) in services 125200 units (37%), and in trade, 26600 units (8%). Of the remainder, 18800 units (5%) are working in other areas (ASPRT, 2021j). Figure 3.4 below summarizes the distribution of business entities by sector.

Figure 3.4 ***Distribution of business entities by sectors in Tajikistan***



	Agriculture	Services	Trade	Other areas
Total number	169,700	125200	26600	18800
Total %	50%	37%	8%	5%

Note. Compiled by the author. Adapted from annual reports of the Agency on Statistics under the President of the Republic of Tajikistan. https://www.stat.tj/en/state-committee-on-investments-and-state-property-management-of-the-republic-of-tajikistan

Despite the measures taken, the country's entrepreneurs, including those in rural areas, still face many difficulties in their activities. These include low economic and legal literacy levels, lack of business planning and business plan development skills, working with information and communication technologies, access to finance especially in rural areas, improving entrepreneurs' financial literacy, and protecting their consumer

rights. These problems, in turn, limit entrepreneurs' access to economic resources, including credit, land, and information.

BY WAY OF SUMMARY, this chapters have presented an overview of the history and development of business incubators. This section has considered the evolution of BIs in three phases, namely the first generation, “economies of scale in infrastructure”; second business support: “speeding up the learning, and the third”; the “development of knowledge-based businesses” including factors that contributed to the establishment of business incubators over time. It also presented the determinants of entrepreneurial awareness and skills among university students and the factors that influence students' entrepreneurial awareness and skills.

The chapter also discussed the impact of business incubation on entrepreneurial intention and factors that contribute to business incubators in fostering entrepreneurial intention such as: the impact of university, entrepreneurship education, business incubators, motivation factors, and personal and academic background on entrepreneurial intention. It also examined the role and effectiveness of business incubators in promoting entrepreneurship development. By this review, it showed that, despite making great efforts to develop business incubators in Tajikistan, their effectiveness is still uncertain. Lastly, it provided an overview of the state of business incubator development, formation, and the current situation of entrepreneurship in Tajikistan and the progress made with the development of BIs in the country.

With this in mind, this study will now turn to the specific context, procedures, and data collection techniques employed to explore the student awareness incubation

programs, the impact of such programs on student's entrepreneurial intention, and the challenges and effectiveness of business incubators on startup growth in Tajikistan.

CHAPTER 4: SURVEY DESIGN AND ADMINISTRATION

4.1 Survey Scope

As outlined in Chapter 1, university students at fourteen universities across the Republic of Tajikistan were surveyed as part of this study. University students were selected because the government of Tajikistan is making a concerted attempt to improve employment conditions for youth and develop business incubators and techno parks as means of cultivating young people who are talented, creative, and innovative and to support them in realizing their business ideas and innovations. Under the guidance of the President of Tajikistan, and with the support of development partners, business incubators are giving special attention to the needs of young people and providing them with the finance, facilities, and services to seek and share entrepreneurial knowledge. In this study then, the questionnaire employed is directed towards university students as a key demographic in this group and attempts to answer whether business incubators in Tajikistan can succeed and enable the provision of essential services to promote entrepreneurship development and create a new startup boom in the country.

4.2 Survey Design

Malhotra (2008) defines a questionnaire as a systematic series of questions to gather replies from survey participants (2008). Questionnaires are a common type of

data collection instrument in information systems research (Orlikowski & Baroudi, 1991). Furthermore, a questionnaire-based survey aids researcher in explaining and examining the underlying linkages among constructs, reasons, and the effects of research (Saunders M. N., 2011) and the analysis of data to evaluate proposed hypotheses.

As business incubators are a new phenomenon in Tajikistan, the researcher determined that it would be more appropriate to collect responses from students through a structured survey questionnaire. A questionnaire was used, firstly, because questionnaires are a commonly accepted instrument for gathering data in information systems research (Palvia & Salam, 2004). Secondly, questionnaires are a useful tool for gathering data from respondents who cannot be directly observed (Babbie, 2004). Finally, given time limits and financial constraints, questionnaires are the most effective and efficient mechanism for collecting primary data. In particular, the distribution of surveys allows researchers to have broad access to respondents at a lower cost (Wright, 2005).

The questionnaire developed for the present study was informed by the work of other researchers such as Li et al., 2020, Dahleez, 2018, Mahmood, Jamil, et al., 2017, and Choto, 2015, who all employed questionnaires in their studies of business incubators. Therefore, a questionnaire was deemed to be suitable as the primary means of data collection in this study.

In the present study, the questionnaire was organized into three main sections or parts. The first part asked for the respondent’s personal details and academic backgrounds. The second part was designed to investigate student’s experience with BIs, and included items that assessed, for example, the level of awareness of incubation support, the impact of the incubation program, students' intentions, challenges faced by

the business incubator, and other related questions about BIs. The third part of the questionnaire was designed to determine the effectiveness of business incubators on the growth of startups.

Several studies have discovered that the questionnaire are typically several pages in length, and questions are one factor that negatively impacts survey response rates (Walston, J. T., Rydén, 2011 and Lissitz, R. W., 2011). Given these findings, the researcher designed the questionnaire in such a manner to minimize the response time. As mentioned above the questionnaire consisted of three parts and the first and second part of the questionnaire was filled out by those students who were aware of the existence of incubation programs in Tajikistan. The third part of the questionnaire was filled out by those students who participated in the incubation programs. Detailed data and statistics obtained from the survey on the characteristics of the surveyed students is provided in Appendixes II and III.

The questionnaire was tested and corrected and then translated into Tajik and Russian languages (see Appendix I). The questionnaire first was sent to the SIBIT in Tajikistan. The institution, in turn, sent an official letter to the universities of the republic with a request to assist in the collection of questionnaires from students. The researcher had the intention to distribute the questionnaire to more than 800 students in Tajikistan, however, because of constraints on time and cost, the number of respondents was capped at 800 students.

With the above in mind, from November to December 2021, a survey was conducted in 14 universities located in 6 cities and districts of Tajikistan, including the regions of Gorno-Badakhshan Autonomous and Oblast (GBAO), Sughd, and Khatlon, and Dushanbe city of Tajikistan (see Table 4.1). The author used a random sampling

approach to select a maximum number of respondents from 14 universities of Tajikistan. Data was collected from graduate and undergraduate students and the questionnaires were distributed and collected with the direct support of the specialist and staff members of the SIBIT, and with the assistance of university teachers, as shown in Table 4.1 below. In the end, the questionnaire was completed by 716 students with a response rate of 89.5%. During the checking of the questionnaires, it was found that some of them were incomplete or empty. Table 4.1 below shows survey distribution characteristics among the university students in question and the number of respondents in each category.

Table 4. 1 ***Survey distribution characteristics among university students in Tajikistan***

	Name and location University	*Share of students by universities in numbers*	*Number of respondents*	*Share of respondents by universities in percentage*
	Dushanbe city			
1	*Tajik National University*	*24419*	*92*	*13%*
2	*Tajik Agrarian University named Shirinsho Shotemur*	*11573*	*49*	*6.8%*
3	*Tajik University of Commerce*	*5394*	*47*	*6.6%*
4	*Technological University of Tajikistan*	*5183*	*44*	*6.2%*
5	*The Tajik state university of finance and Economics*	*9214*	*50*	*6.8%*
6	*Tajik Institute of Entrepreneurship and Service*	*4094*	*42*	*6%*
	Sughd region			
7	*Khujand State University named after Academician B. Gafurov*	*25035*	*85*	*12%*
8	*Khujand State University of Law, Business and Politics*	*7871*	*41*	*6%*
9	*Institute of Economy and Trade of Tajik State University of Commerce in Khujand*	*3935*	*43*	*6%*
10	*Khujand Branch of Technological University of Tajikistan*	*4231*	*48*	*7%*
	Khatlon region			
11	*Bokhtar State University named after Nosiri Khusrav*	*12281*	*36*	*5%*
12	*Kulob State University named after Abuabdullohi Rudaki*	*10827*	*41*	*6%*

13	*Dangara State University*	*9896*	*48*	*6%*
	GBAO region			
14	*Khorog State University named after Moyonsho Nazarshoev*	*3935*	*50*	*6.8%*
Total number	***14 University***	***137 888***	***716***	***100%***

Table 3.1, Survey Distribution Characteristics
(Source: Ministry of Education and Science of the Republic of Tajikistan, 2021)

According to Taherdoost, (2017), a sample size of 384 corresponds to a 95 percent confidence level for a population of more than five hundred thousand. Since the sample size is 716, the present study applies the same confidence level of 95% with a margin of error of 3.66 and a standard deviation of 5 around the mean. (Taherdoost, 2017).

CHAPTER 5: SURVEY RESULTS AND FINDINGS

5.1 Introduction

This chapter presents the results and findings of the survey data. The chapter is organized into three main sections, beginning with an analysis of the results for student awareness of the existence of incubation programs in section 5.2, the entrepreneurial skills of students in section 5.3 and the effectiveness of business incubators in section 5.4.

5.2 Student awareness about business incubators

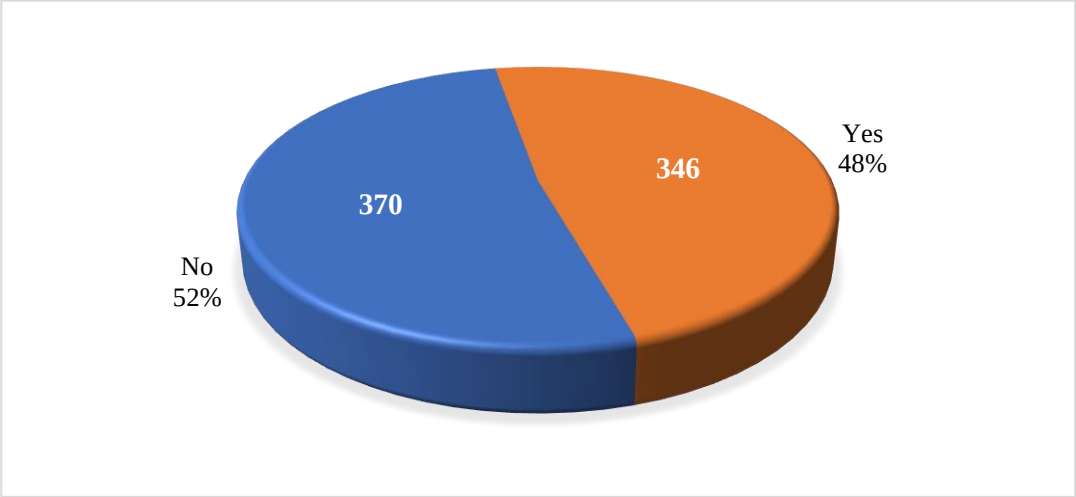
In this section, the respondent's knowledge of BIs and awareness of the incubation program is discussed. This included the student's participation in an incubation program,

factors that motivated students to participate in the incubation program, what kind of support students asked for from BIs, whether BIs help students to start business and what challenges they faced.

5.2.1 Information about business incubators

According to the design of the survey, this question was included to understand whether students had information about business incubators. The survey responses show that 48% of students highlighted that they have information about business incubators. The study also found that 52% of the remaining students, consisting of over half of the responses, had no information about business incubators. Figure 5.1 below summarizes the results that were obtained.

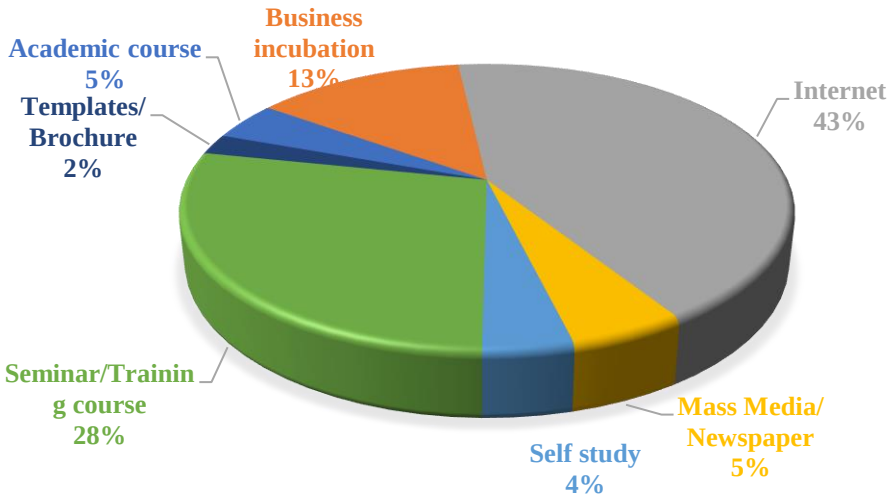
Figure 5. 1 ***Information about business incubators***



(Source: Field Survey, November-December 2021)

In the same way, the survey also asked respondents about the source of their information regarding business incubators. As Figure 5.2 shows, Internet courses were the primary source of information about BIs (43%). Seminars or training programs ranked second with (28%). Business incubation came in third place with (13%). Academic courses and mass media/newspaper, self-study and template brochures accounted for the remainder of sources, with 2 - 5% each. Figure 5.2 below summarizes these results.

Figure 5. 2 ***Sources of information about business incubators***



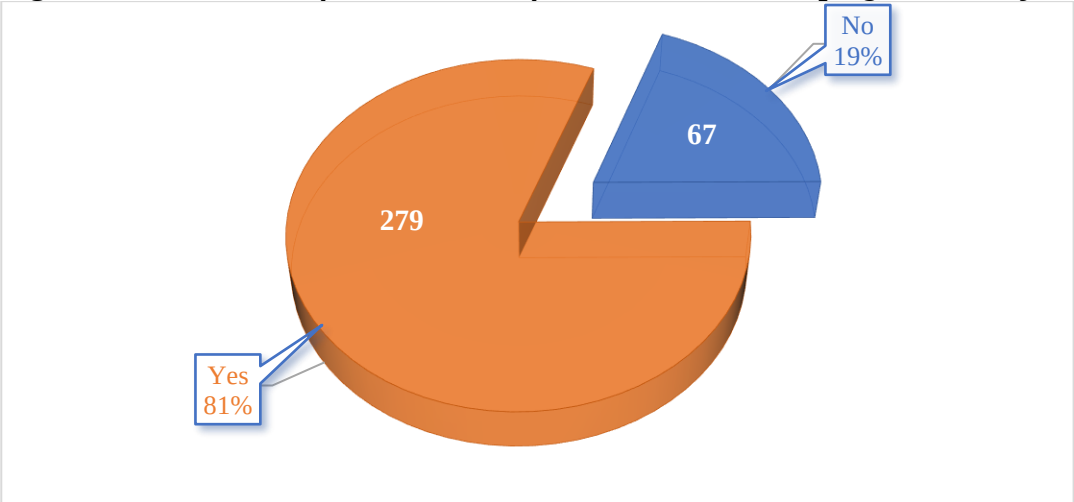
(Source: Field Survey, November-December 2021)

5.2.2 Awareness of the existence of business incubation programs

This survey question was also designed to determine whether the students surveyed in this research were aware of the existence of business incubation programs. The results of the survey show that 81% of students who had information about business incubators were aware of the existence of incubation programs, while a small percentage of

respondents (19%) were not aware of BI programs. The results are presented below in Figure 5.3.

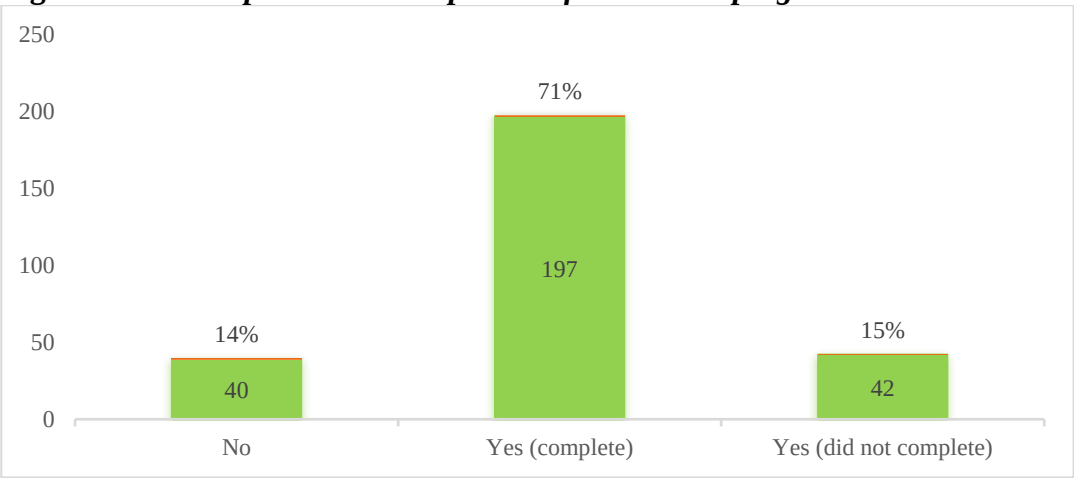
Figure 5. 3 ***Awareness of the existence of business incubation programs in Tajikistan***



(Source: Field Survey, November-December 2021)

From the overall number of the students who demonstrated awareness of the existence of incubation programs, a considerable number (71%) participated in incubation programs and completed them. Moreover, 15% stated that they did not complete incubation programs. The rest of the students, around 14%, did not participate in any incubation programs. The results are presented in Figure 5.4 below.

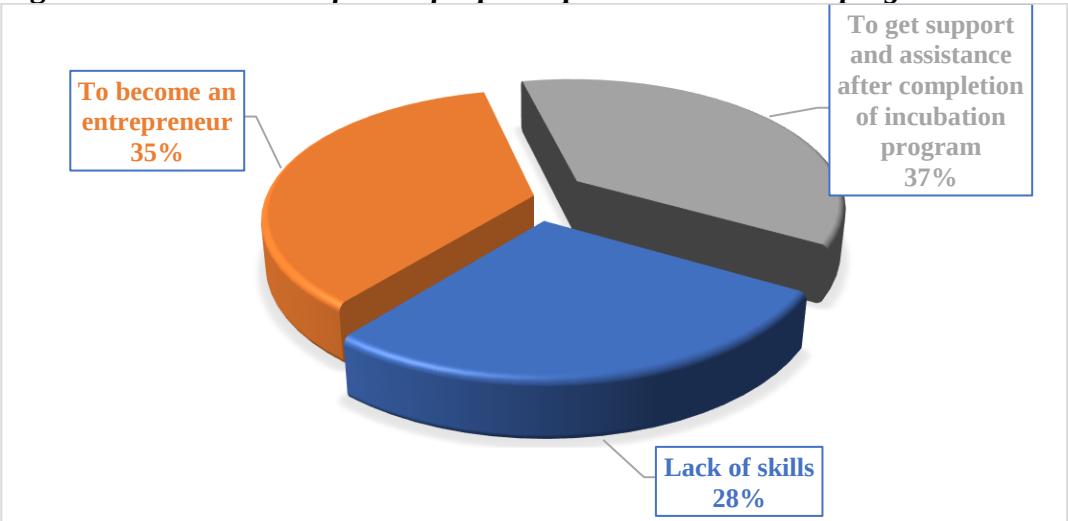
Figure 5. 4 ***Participation and completion of incubation programs***



(Source: Field Survey, November-December 2021)

Additionally, in terms of the motivation of students to attend incubation programs while participating in them, of all the respondents surveyed (about 37%), stated that their motivation was to get support and assistance after completion of the incubation program. Furthermore, 35% of the respondents were motivated to become entrepreneurs, and the remainder, 28%, stated that their motivation was lack of skills. The results are illustrated below in Figure 5.5.

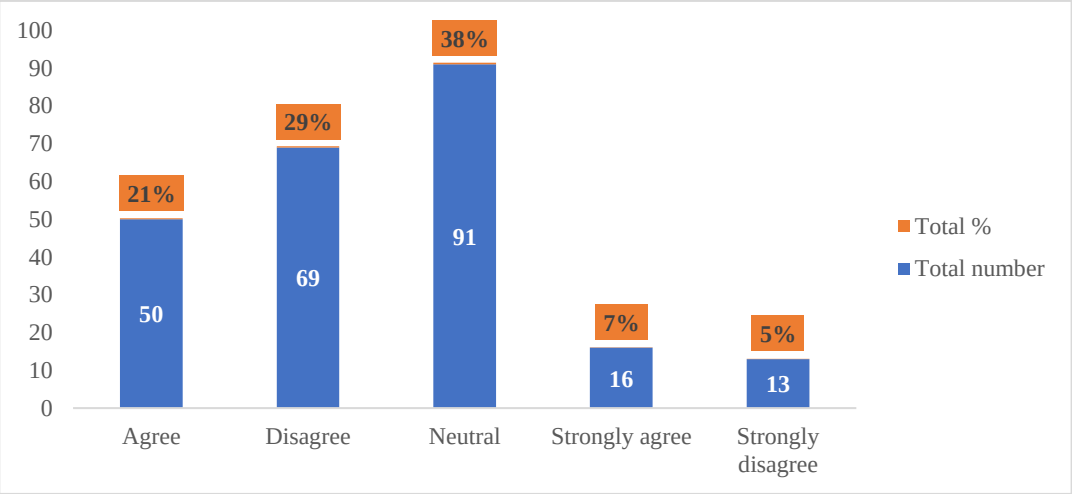
Figure 5. 5 ***Motivational factors for participation in incubation programs***



(Source: Field Survey, November-December 2021)

Another question sought to determine whether students benefited from incubation programs to start their businesses. A large number of respondents (38%) replied that they were neutral, while 42% indicated that they did not benefit from incubation programs (including 29% who disagreed and 21% who strongly disagreed). Also, a significant number of respondents replied they agree (21%) and strongly agree (7%). Figure 5.6 below illustrates these results.

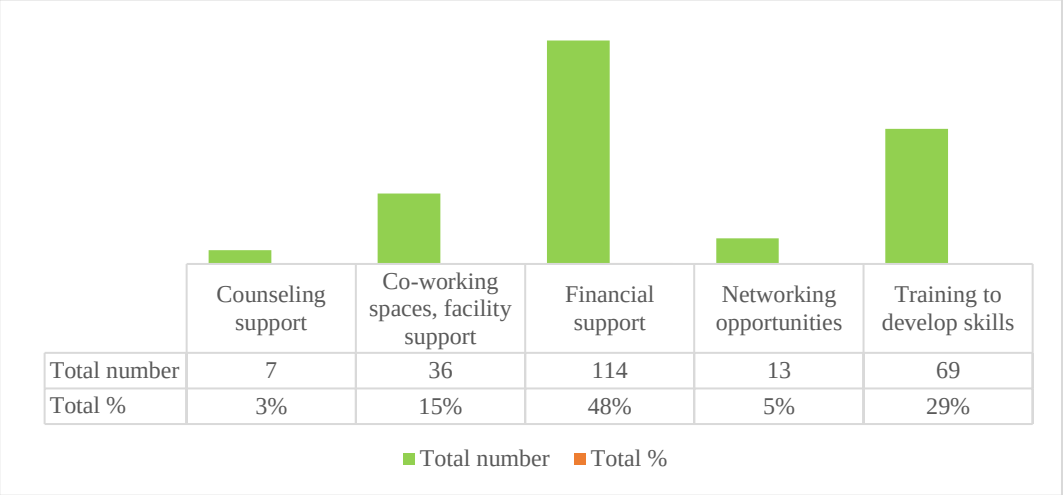
Figure 5. 6 ***Benefits of participating in incubation programs***



(Source: Field Survey, November-December 2021)

Similarly, the questionnaire asked about the type of support the students required from the business incubator. As the results show, the highest percentage of respondents (48%) required financial support while others required training to develop skills (29%). Additionally, 15% of participants indicated that they required co-working spaces and facilities support, but others required counseling support (7.0%). Students who required networking opportunities came in at just 5.0%. Figure 5.7 below shows the results that were obtained.

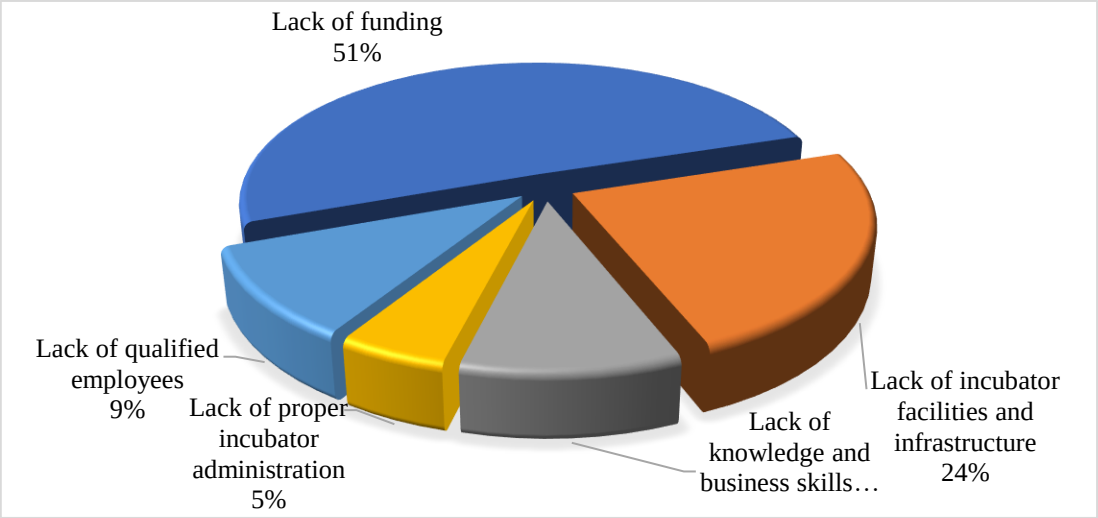
Figure 5. 7 ***Type of support required from business incubators***



(Source: Field Survey, November-December 2021)

In the same way, the survey also asked respondents to select the five most significant challenges they have already faced from the business incubators. Unsurprisingly, more than half of the respondents (51%) stated financial challenges as the primary difficulty, followed by a lack of incubator facilities and infrastructure (24%). Another group of respondents (11%) indicated that lack of knowledge and business skills were significant challenges they would face by business incubator. The issue of a lack of qualified employees also exists (9%). However, a relatively small proportion of respondents (5%) pointed out that lack of proper incubator administration is also a challenge faced by business incubators. The results are shown in Figure 5.8 below.

Figure 5. 8 ***Challenges faced by business incubators***



(Source: Field Survey, November-December 2021)

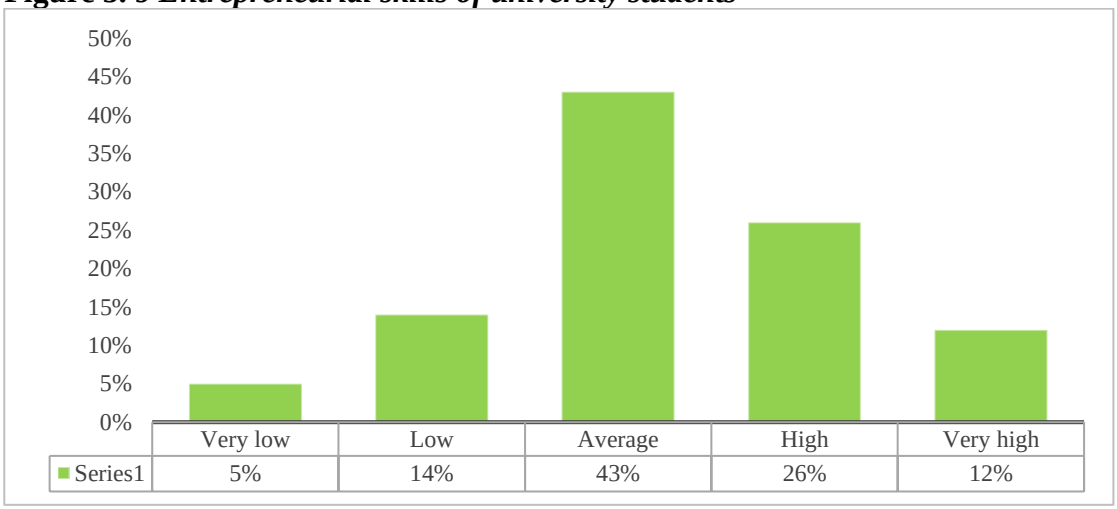
BY THE WAY OF SUMMARY, in terms of students' awareness of incubation programs, the findings show that less than half of respondents (39%) are aware of IPs in Tajikistan. Looking at the overall results from the perspective of gender, 29% of men and 10% of women are aware of incubation programs and the remainder are not. Of these responses, men account for 36%, and women for 25% of the total respondents.

Moreover, the findings show that from the overall number of the students who demonstrated awareness of the existence of incubation programs, more than half of the male students (73%) participated in incubation programs while the share of women who participated was 23%. Of the remainder, 3% of male students and 13% of female students did not participate in incubation programs. Furthermore, the findings revealed that almost half of respondents (48%) required financial support, but unfortunately, more than half of the respondents (51%) stated lack of funding as the primary difficulty facing business incubators.

5.3 Entrepreneurial skills, experience and understanding of business incubators

Next, Figure 5.9 below shows students' entrepreneurial skills, experience, and their understanding of business incubators.

Figure 5. 9 ***Entrepreneurial skills of university students***

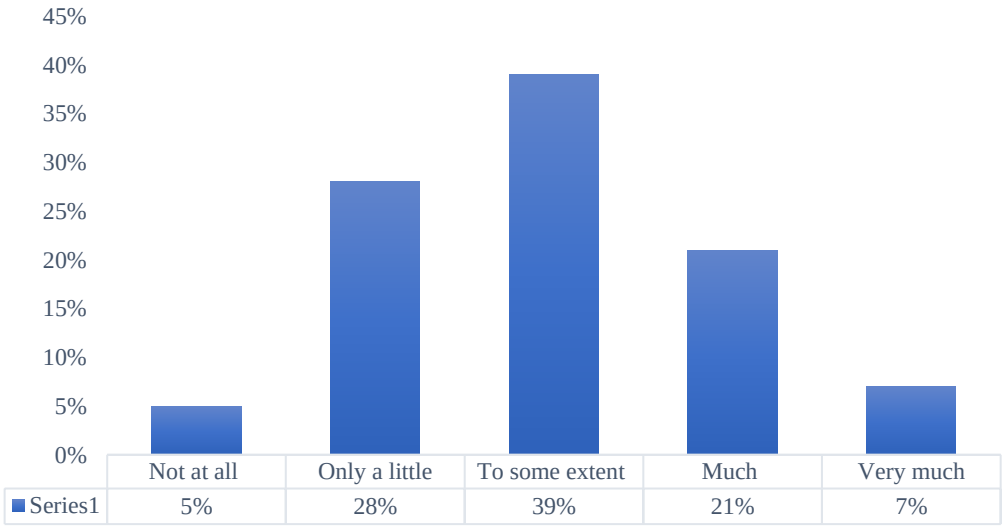


(Source: Field Survey, November-December 2021)

As the results show, a significant number of students confirmed having entrepreneurial skills (average 43%), while another group of respondents replied that their entrepreneurial skills are "high" (26%) or "very high" (12%). Also, a small number of respondents rated themselves as having “low” (14%) or “very low” (5%) entrepreneurial skills.

Similarly, the questionnaire asked whether students had experience in entrepreneurship. As Figure 5.10 shows, a significant number of respondents (39%) reported having experience to some extent while 28% reported "only a little" experience. Additionally, 21% of respondents stated that they have much (24%) or very much (7%) experience with entrepreneurship. However, just 5% of students replied that they did not have any experience.

Figure 5. 10 ***Experienced in entrepreneurship***

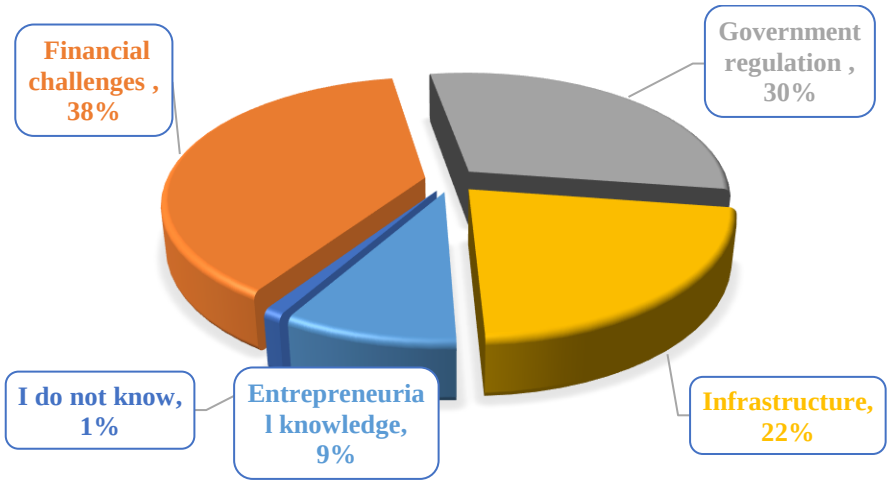


(Source: Field Survey, November-December 2021)

Respondents were also asked to select the five most significant challenges entrepreneurs face in running their businesses. As Figure 4.11 shows, a high proportion

of students (38%) confirmed financial challenges as the primary difficulty of entrepreneurs, followed by infrastructure (22%). Another group of respondents (30%) indicated that government regulations were a significant challenge that are faced by entrepreneurs. The issue of entrepreneurial knowledge accounted for 9% of responses and a very small proportion of respondents (1%) pointed out that they do not know what challenges entrepreneurs face.

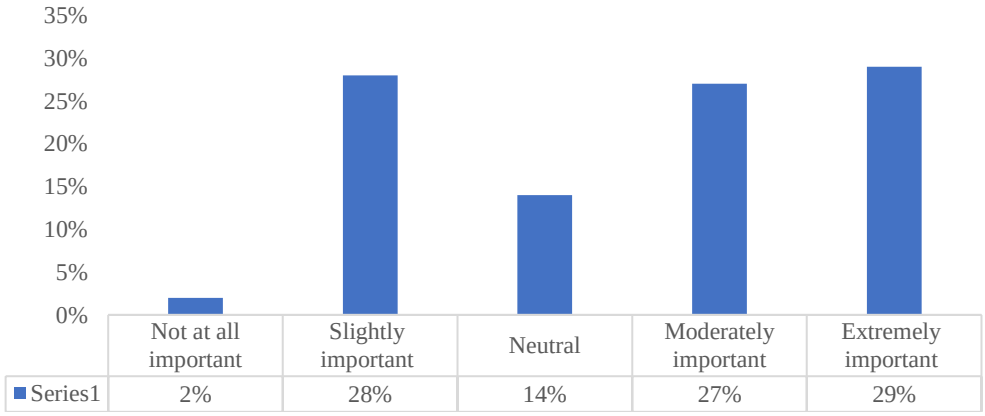
Figure 4. 11 ***Challenges faced by entrepreneurs in running their businesses***



(Source: Field Survey, November-December 2021)

The survey also asked respondents whether support from business incubators is important for students to launch businesses. Students were asked to rate the support using a (five-point) Likert scale. As Figure 5.12 shows, a higher percentage rated BIs as extremely important (29%), slightly important (28%), and moderately important at (27%). The remainder of respondents were either neutral (14%) or responded not at all important (2%).

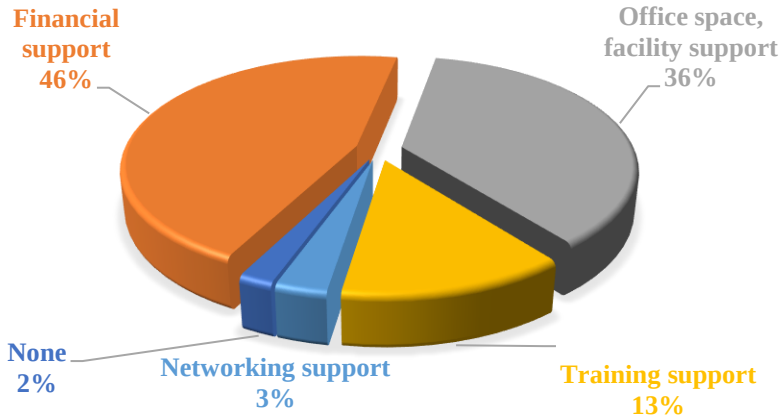
Figure 5. 12 ***Importance of business incubator support for students to launch businesses***



(Source: Field Survey, November-December 2021)

Similarly, the questionnaire asked what kind of business incubator support is important for setting up businesses. The results are summarized in Figure 5.13. As the Figure shows, over half of the respondent's selected financial support (45%), followed by office space, facility support (36%), and training support (13%). The percentage of respondents who replied that networking support and counseling are important was only 3% each and a relatively small proportion of respondents pointed out that no type of business incubator support is important or none (2% each).

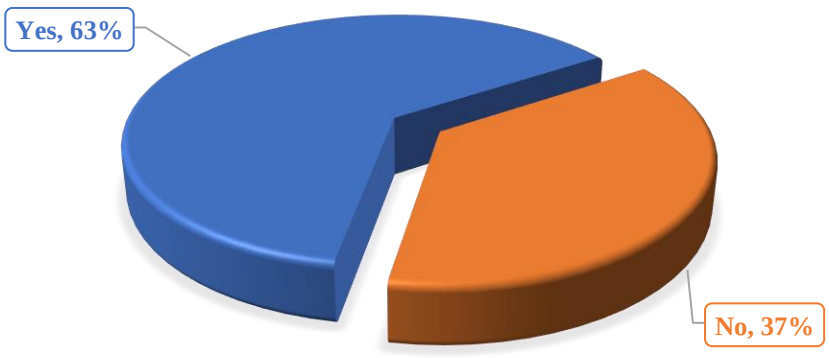
Figure 5. 13 ***Importance of the type of business incubator's support for setting up businesses***



(Source: Field Survey, November-December 2021)

The final question focused on understanding whether students want to start their own business or not. As Figure 5.14 shows, the survey results show that most students want to start their own business (63%), while a small portion (37%) of respondents do not intend to engage in entrepreneurship.

Figure 5.14 ***Want to start their own business***



(Source: Field Survey, November-December 2021)

5.4 Effectiveness of business incubators

Turning now to the question of the effectiveness of BIs, this section will analyze the extent to which the services provided by BIs are effective for the growth of startups or not. In doing so, it was necessary to identify which services provided by BIs in Tajikistan are effective by conducting an in-depth survey of them. As it was necessary to report on multiple categories and items simultaneously, tables are used in the following sections, for clarity, to present the data. Table 5.1 below shows the effectiveness of BIs for the growth of start-ups.

Table 5.1 ***Effectiveness of incubation services for the growth of startups***

Effectiveness of incubation services for the growth of startups				
Not at all effective	Little effective	Somewhat effective	Moderately effective	Very effective
3%	27%	26%	26%	18%

As the table shows, the results for the effectiveness of incubation services are somewhat mixed. Looking at the positive results, for example the percentage of responses selected as "very effective" or "moderately effective" (44% in total), it is possible to determine that some of the services provided by business incubators are effective. On the other hand, the results also show that 53% of respondents consider the incubation services to be "somewhat effective" or "little effective". This suggests that some of the services provided by BIs are not as effective as they could be.

5.5 Services provided by Bis

Table 5.2 below summarizes the results for infrastructure facilities services among five categories.

Table 5.2 ***Infrastructure facilities***

BIs assist in the provision of affordable/flexible infrastructure and office facilities				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	6%	31%	42%	20%
BIs assist in creating the business at the best locations				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	10%	45%	39%	4%
Business incubators assist in obtaining high-quality office equipment				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	10%	47%	38%	3%
BIs makes it easier to share office facilities				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
0%	7%	28%	48%	17%
Business incubators create a free or low-cost work environment				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
0%	8%	37%	51%	4%

Among the five categories in Table 5.2 a significant number of respondents agreed in three categories of facilities and rated the effectiveness of the incubators at over 50%. However, as the Table shows, shared office facilities (see the fourth category above) are viewed as the most effective for startups' business with 48% agreeing and 17% strongly agreeing, followed by affordable/flexible infrastructure and office facilities (see the first category) with 42% agreeing and 20% strongly agreeing, and then free or low-cost work environment (the last category) with 51% agreeing and 4% strongly agreeing. Tellingly, only 6% to 10% of respondents selected "disagree" or "strongly disagree" within these three categories.

Other than the infrastructure-related facilities, among the remaining two categories, the respondents showed less than 50% agreement with the effectiveness of incubators. Regarding the assistance of incubators in creating businesses at the best locations (see the third category above), 39% agreed and 4% disagreed on the effectiveness of and for high-quality office equipment 38% agreed and 3% strongly agreed. Only a small number of respondents (7% to 10%) selected "disagree" or "strongly disagree" within these two categories.

To summarize, the key finding from Table 5.2 is that some facilities services provided by the incubators (see categories 1, 4, and 5) are very effective for the growth of startups. Among the remaining two categories (see categories 2 and 3), respondents have shown less than 50% agreement on the effectiveness of incubators.

Table 5.3 summarizes respondents' overall perceptions of the of marketing services provided by BIs.

Table 5.3 ***Marketing services***

BIs assist in the provision of opportunities markets both local and international				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	9%	38%	44%	7%
BIs provides exhibition space design for business				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	10%	45%	39%	4%
BIs provide a platform for entrepreneurs to participate in display and business fairs				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	7%	29%	49%	14%

Looking at the overall results in Table 5.3, it is possible to observe that respondents in two of the three categories of marketing services reported their strong agreement on the effectiveness of business incubators (see the first and third categories in the Table). At the same time, the results show that in at least one category, respondents reported that marketing services were less effective (see the second category). Within these categories, according to respondents, participate in display and business fairs (48% agreed and 14% strongly agreed) is the most important service that an incubator provides to its residents.

Regarding the category of generally opportunities markets both local and international (44% agreed and 7% strongly agreed), respondents believe that incubators have been very effective for the growth of startups. However, within the last category of Table 3.4, respondents rated the category of "exhibition space design for business" as less effective for business growth (39% agreed and 4% strongly agreed). Only from 1% until 10% of respondents selected "disagree" or "strongly disagree" with these three categories of marketing services.

Table 5.4 below provides an overview of the results for training programs that were provided by BIs.

Table 5.4 ***Training programs***

Business incubators help in developing and strengthening skills and capacity-building opportunities				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	4%	27%	51%	16%
Business incubators assist in improving skills for product development				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	6%	35%	50%	5%
Business incubators assist in improving skills for business management				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	4%	18%	50%	3%
Business incubators provide help in improving business and marketing skills				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	3%	36%	47%	9%
Business incubators assist in providing customized training programs and skills				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	4%	22%	52%	21%

The results of respondents' perceptions regarding training programs provided by the incubator shows the high effectiveness of such services. Among the five categories shown in Table 5.4, training programs is the only category that has the highest rating in terms of the effectiveness for the growth of startups (see the last category in the Table). However, within the training programs, the category of customized training programs and skills is the most effective of the services (52% agreed and 21% strongly agreed), followed by the strengthening of skills and capacity-building opportunities (51% agreed and 16% strongly agreed), and improving business and marketing skills (47% agreed and 9% strongly agreed). Regarding services provided by business incubators for improving skills for product development (see the second category), respondents perceive this category as very effective (50% agreed and 5% strongly agreed).

Similarly, in terms of services provided by business incubators regarding improving skills for business management, respondents rated this category as very effective (50% agreed and 3% strongly agreed). As Table 5.4 shows, only a very small

percentage of respondents (from 1% until 7%) selected "disagree" or "strongly disagree" within these five categories of training programs

Table 5.5 below summarizes the results for networking services provided by the incubator among three categories.

Table 5.5 ***Networking services***

Business incubators provide timely updates information about exhibition rules and specific sectors				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	4%	22%	47%	26%
Business incubators provide assist in networking with chambers of commerce and business associations				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	5%	32%	56%	6%
Business incubators provide updated information about technological advancements				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	4%	26%	52%	17%

As the Table shows, networking services are generally considered to be effective for the growth of their startups. In general, among the three categories, respondents perceive that, timely updates and information about exhibition rules and specific sectors between another's networking services (see the first category), is the most effective for their startups (47% agreed and 26% strongly agreed).

Regarding the results about the effectiveness of business incubators in updated information about technological advancements (see the third category), the results demonstrate that this category has been very effective (52% agreed and 17% strongly agreed). However, within the last category the results shows that networking with chambers of commerce and business associations is also effective for growth business

(56% agreed and 6% strongly agreed). Only a small number of respondents selected "disagree" or "strongly disagree" (from 1% to 4%) within these three categories of networking services. The results indicate is that all categories of networking services are generally considered to be effective for the growth of their startups.

Table 5.6 shows the result for the effectiveness of consultancy-related services for the growth of their startups.

Table 5.6 ***Consultancy services***

Business incubators provide consultancy services for determining appropriate projects				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	4%	22%	49%	24%
Business incubators provide assist in the development of marketing and management strategies				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1%	4%	23%	51%	21%
Business incubators provide consultancy services for designing business cards, brochures, and websites				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	5%	26%	59%	5%
Business incubators provide consultancy services on managing cash and getting finance through banks				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	9%	44%	42%	3%
Business incubators provide help businesses in using accounting software				
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2%	8%	33%	53%	4%

Among the five categories in Table 5.6 above, according to respondents, consultancy in determining appropriate projects (49% agreed and 24% strongly agreed) is the most effective service provided by the incubator to its residents, followed by the development of marketing and management strategies (51% agreed and 21% strongly agreed), and designing business cards, brochures, and websites (59% agreed and 5%

strongly agreed). Moreover, respondents showed their agreement with the business incubator's effectiveness in using accounting software in the last category (53% agreed and 4% strongly agreed).

On the contrary, as Table 5.6 shows, consultancy services on managing cash and getting finance through banks are less effective (42% agreed and 3% strongly agreed) than the services mentioned above. Among the five categories, a small proportion of respondents (from 1% to 9%) indicated that consulting services provided by a business incubator are ineffective. The key finding from this Table is that some of the categories (e.g., categories 1, 2, 3, 5) are effective for the growth of startups. In the one remaining category (that is, category 4), less than 50% of respondents agree on the effectiveness of business incubators.

5.6 Variables and specification

As the focus of this research is on students who have participated in BI programs to assess whether the services provided by BIs are effective for the growth of startups or not. To do so, it is necessary to identify which services provided by BIs in Tajikistan are effective by way of a statistical analysis of the survey data obtained on the BIs. For this purpose, the Ordered Probit and Logit model to assess the data and determine the effectiveness of BIs.

At first, the statistical analysis was carried out by using the "Stata". According to the dataset, the researcher organized three groups of variables for each model. The first group includes demographic characteristics variables, such as (age, gender, marital status, student education level, faculty professional, father's occupation, mother's

occupation, and family income). The second group, along with demographic characteristics variables, includes incubation programs, motivation to become an entrepreneur, entrepreneurial skills, and business experience. The third group refers to the effectiveness of business incubators, including variables infrastructure support, marketing services, training program, networking services, and consultancy services. As this type of analysis generated a considerable amount of data, and for reasons of space, a detailed account of the variable specification and their expected impact on BI decisions is provided in Appendix IV.

CHAPTER 6 ANALYSIS AND DISCUSSION OF SURVEY RESULTS

6.1 Introduction

This chapter presents the results of the statistical analysis of the survey data. The chapter is organized into three parts. In the two parts, overviews of the analytical models employed, and the variable names, definitions, and assignment descriptions are provided by way of background. In the third part, the results of the reliability and validity analysis of variables and the results of models are presented and discussed. First then, let us turn to the overview of analytical models.

6.2 Binary Probit and Logit Model

This section provides an overview of the models used to evaluate students' awareness of BIs. In terms of the first and second research question, Probit and Logit models are binary selected models used to evaluate students' awareness about the

existence of business incubation programs. For the impact of incubation programs on the entrepreneurial intention of students in the literature the Logit or Probit models can be used (see, for example, Xu et al., 2020). However, the Probit model is better suited to more generic normal distribution assumptions (Xu et al., 2020). Therefore, the author utilized the following natural logarithm function of the equation for the evaluation of the Binary Probit model:

$$P(y = 1 \mid x) = f(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k)$$

The dependent variable in this model is the student's awareness about incubation programs. The binary answers take the value 1 for "yes" categories and 0 for otherwise. The explanatory variables are labeled as X1-X8 (for awareness of incubation programs) and X1-X9 (for entrepreneurial intention), respectively. The names of the variables, definitions, and assignment descriptions are briefly described in Table 6.1.

Table 6. 1 ***Variable names, definitions, and assignment descriptions for BI awareness***

Variable name	Variable meaning	Definitions, and assignment descriptions	Sources that used this variable
Y	**BI awareness**	**Dummy variable** which indicates that if the students are aware of business incubation programs, **1** if are not aware = **0** otherwise	(Choto, 2015)
X1	**Age**	**Numerical variable** which indicates if the students were aged less than 20; **one** if aged between 21 and 22 years; **two** if aged between 23 and 24; **three** if aged between 25 and 26 years **four** and **five** if respondents were aged 27 years or more.	(Baidi & Suyatno, 2018 and Ghina et al., 2017)

X2	**Gender**	**Dummy variable** which indicates gender of students if male=1; female=0.	(Chomentauskas et al., 2021, Xu et al., 2020 Xanthopoulou &Megalooikonomou, 2020)
X3	**Work status/experience**	**Dummy variable** which indicates whether student's have a full or part time job, **1** if not working = 0.	(Nguyen, 2018, Keat et al., 2011, Kristiansen and Indarti, 2004)
X4	**Student education level**	**Dummy variable** which indicates if students are graduates **1** if undergraduate = 0.	(Xanthopoulou & Megalooikonomou, 2020)
X5	**Faculty and professional**	**Dummy variable** which indicates if students are graduates **1** if undergraduate = 0.	(Kallany & Suresh, 2018, Xu et al., 2020)
X6	**Family income**	**discrete variable** which indicates if the family income of students is less than 999 somoni=0; 1000-1999 somoni=1; 2000-2999 somoni=2; 3000-3999 somoni=3; 4000-4999 somoni=4; Over 5000 somoni=5.	(Zeb et al., 2021, (Xu et al., 2020, Setti, 2018)
X7	**Entrepreneurial skills**	**Liker scale variable** which indicates if students confirmed having entrepreneurial skills **v**ery low = 0, low=1, average=2, high=3, very high=5	(Indriyani, 2021 Saptono, 2021)
X8	**Business experience**	**Liker scale variable** which indicates that students confirmed having no experienced not at all=0, have experienced only a little=1, to some extent=2, much=3, very much=4	(Xu et al., 2020)
		ε *is a normally distributed error term*	

A Binary Probit estimation was also conducted to analyze the entrepreneurial intention of students. The dependent variable is whether the respondent has an intention to start a business. Once again, the answers take the value 1 for "yes", and 0 for otherwise. The explanatory variables are presented in Table 6.2.

Table 6. 2 ***Variable names, definitions, and assignment descriptions of impact of BIs on entrepreneurial intention***

Variable name	Variable meaning	Definitions, and assignment descriptions	Previous literature used this variable
Y	**Want to start business or no**	**Dummy variable** which indicates if the students are aware of business incubation programs, **1** if are not aware = **0** otherwise	Xu et al., 2020, and Harris Maduku & Makhosazana Faith-Vezi-Magigaba, 2019)
X1	**Age**	if the students were aged less than 20; **one** if aged between 21 and 22 years; **two** if aged between 23 and 24; **three** if aged between 25 and 26 years **four** and **five** if respondents were aged 27 years or more.	(Baidi & Suyatno, 2018 and Ghina et al., 2017)
X2	**Gender**	**Dummy variable** which indicates the gender of students if male=**1**; female=**0.**	(Chomentauskas et al., 2021, Xu et al., 2020 Xanthopoulou &Megalooikonomou, 2020)
X3	**Student education level**	**Dummy variable** which indicates if students are graduates=**1** if undergraduate=**0**.	(Xanthopoulou & Megalooikonomou, 2020)
X4	**Faculty and professional**	**Dummy variable** which indicates if students are graduates=**1** if undergraduate=**0.**	(Kallany & Suresh, 2018, Xu et al., 2020)
X5	**Family income**	Less than 999 somoni=0; 1000-1999 somoni=1; 2000-2999 somoni=2 3000-3999 somoni=3 4000-4999 somoni=4 Over 5000 somoni=5	(Zeb et al., 2021, (Xu et al., 2020, Setti, 2018)
X6	**Participation in incubation programs**	**Dummy variable** which indicates if students participated in incubation programs **1** otherwise=**0.**	(Choto, 2015)

X7	**Completion in incubation programs**	**Dummy variable** which indicates if students completed incubation program=1 did not complete=**0.**	
X8	**Motivation for participation incubation programs**	**Dummy variable** indicates three factors of motivation which recognized the most important motivation to become an entrepreneur indicates if students are motivated to become entrepreneur **1** otherwise=**0.**	(Zhou et al., 2019, Joseph, 2017, Asmara et al., 2016, Altinay et al., 2012)
X9	**Effectiveness of BIs**	**Liker scale variable** which indicates if the students confirmed BI as not at all effective 1, little effective 2, somewhat effective 3, moderately effective 4 and very effective 5.	(Sedita et al., 2017)
		***ε** is a normally distributed error term*	

6.3 Ordered Probit and Logit Model

In terms of the effectiveness of business incubators, this study followed the advice of (Sedita et al., 2017), who recommended using the Ordered Probit and Logit model. The author utilized the following natural logarithm function of the equation for the evaluation of the Ordered Probit model. [2]

[2] Arundel & Kabla, (1998) argued that the Ordered Probit model fits the data somewhat better than a logit model (Arundel & Kabla, 1998).

The latent variable z_i, which is the basis of ranking effectiveness, is a linear function of covariates X_i:

$$z_i = \beta X_i$$

Ordered ranking of effectiveness (y_i) is:

$$y_i = 1, \quad z_i \leq u_{i1}$$

$$y_i = 2, \quad u_{i1} < z_i \leq u_{i2}$$

$$y_i = 3, \quad u_{i2} < z_i \leq u_{i3}$$

$$y_i = 4, \quad u_{i3} < z_i \leq u_{i4}$$

$$y_i = 5, \quad u_{i4} < z_i$$

The observable dependent variable is the effectiveness of BIs, which is measured by five Likert scale responses: 1 is for not at all effective, 2 for little effective, 3 for somewhat effective, 4 moderately effective and very effective 5. Covariates are the services provided by BIs. They include infrastructure facilities, marketing services, training programs, networking, and consultancy services. The study also included three main challenges faced by Bis as independent variables because respondents' response to other challenges was minimal. The names of the relevant variables, definitions, and assignment descriptions are briefly described in Table 6.3. The estimating equation can be written as:

Effectiveness = a + B1(infra) +B2(marketing) +B3(training) + B4(networking) +B5(consultancy)+B6(BIchallenge_funding)+B7(BIchallenge_infra)+B8(BIchallenge _skills)

Table 6.3 ***Variable name, definitions, and assignment descriptions on the effectiveness of Bis***

Variable name	Variable meaning	Definitions, and assignment descriptions	Previous literature used this variable
Y	**Effectiveness of BIs**	**Liker scale variable** which indicates if the students confirmed BI as not at all effective 1, little effective 2, somewhat effective 3, moderately effective 4 and very effective 5.	(Sedita et al., 2017)
X1	**Infrastructure facilities**	**Liker scale variable** that used a 5-point Likert scale questionnaire. The responses were strongly disagree, disagree, neutral, strongly agree, and agree. All responses are typically coded as 1 strongly disagree, 2 for disagree, 3 neutral, 4 agree and 5 strongly agree.	(Njau et al. 2019, Mahmood, Jamil, et al., 2017, Shahzad et al. 2012)
X2	**Marketing services**	**Liker scale variable** that used a 5-point Likert scale questionnaire. All responses are typically coded as 1 strongly disagree, 2 for disagree, 3 neutral, 4 agree and 5 strongly agree.	(Mahmood, Jamil, et al., 2017, Shahzad et al. 2012)
X3	**Training programs**	**Liker scale variable** that used a 5-point Likert like scale questionnaire. All responses are typically coded as 1 strongly disagree, 2 for disagree, 3 neutral, 4 agree and 5 strongly agree.	(Li et al., 2020, Ahmed et al., 2020)
X4	**Networking services**	**Liker scale variable** that used a 5-point Likert scale questionnaire. All responses are typically coded as 1 strongly disagree, 2 for disagree, 3 neutral, 4 agree and 5 strongly agree.	(Li et al., 2020, Muiruri, 2020, Mahmood, Jamil, et al., 2017)
X5	**Consultancy services**	**Liker scale variable** that used a 5-point Likert scale questionnaire. All responses are typically coded as 1 strongly disagree, 2 for disagree, 3 neutral, 4 agree and 5 strongly agree.	(Mahmood, Jamil, et al., 2017, Shahzad et al. 2012)
X6	**BI challenge lack of funding**	**Dummy variable** which indicates if students stated lack of funding is	(Lose, Tengeh, et al., 2016, Tiren, 2020)

		a main challenge faced by BI **1** otherwise=**0.**	
X7	**BI challenge infrastructure**	**Dummy variable** which indicates if students stated infrastructure is a main challenge faced by BI **1** otherwise=**0.**	(Mireftekhari, 2017, Meru & Struwig, 2015, Diedericks, 2015, Tiren, 2020)
X8	**BI challenge lack of skills**	**Dummy variable** which indicates if students stated lack of skills a main challenge faced by BI **1** otherwise=**0.**	(Tengeh & Choto, 2017, Justino and Tengeh, 2016, (Tiren, 2020)

6.4 Reliability and validity analysis of variables

After accepting the Probit and ordered regression in STATA, the researcher proceeded to check the stability, reliability and validity of variables based on the survey results. According to Omar & Bwaliez, (1995), reliability and validity should be calculated and tested even if the study uses well-known measurement items from previously successful studies (Omar & Bwaliez, 1995). The present study used Cronbach's alpha and combined reliability (see Fornell & Larcker, 1981) to examine the inherent stability and reliability of the variables. Cronbach's alpha and complex reliability values must be greater than 0.70 to provide satisfactory reliability (Hair & Tatham, 2006).

The Cronbach's alpha test has a score range of 0 to 1, with a result below 0.5 being unacceptable and a number above the scope of 0.5 to 1.0, suggesting better variable consistency (Hair et al., 2010). Therefore, the Cronbach's alpha test was used in Stata to determine the reliability and validity of variables in the study, and 22 variables were assessed for stability and reliability. The Cronbach alpha values range from 0.889 to

0.884, which are higher than the suggested value of 0.7. As a result, it is possible to deduce that all variables have a high level of reliability and validity. Appendix V shows the computed Cronbach's alpha and composite reliability analysis of stability.

6.5.1 Probit regression results for impact of incubation programs on entrepreneurial intention of students

This section presents the results for the impact of incubation programs on the entrepreneurial intention of students. Originally, the researcher intended to also include the results from the Binary Probit and Logit models for awareness of incubation programs, however, for reasons of space, this analysis is provided in Appendix VI and the present section focus only on the impact of incubation programs.

Table 6.5 shows the outcomes of using a Probit model. Like the previous Probit regression, by replacing the dependent variable (want to start a business or not) and some independent variables, the author applied another regression to determine the impact of incubation programs on students' entrepreneurial intentions. The outcomes of the Binary Probit model demonstrate that more than 67% of the explanatory variables are correct, with six of the nine variables being statistically significant. As a result, it is reasonable to presume that the model's fitting is highly suitable for assessing the impact of incubation programs on students' entrepreneurial intention. The likelihood ratio chi-square of 73.45 with 9 degrees of freedom and the p-value of 0.0001 reveals that the model is statistically significant. The results of the Binary Probit model are shown in Table 6.5 below.

Table 6.4 ***Result of Probit estimate on analysis of the impact of incubation programs on entrepreneurial intention***

Probit regression — Number of obs = 239
Wald chi2(9) = 73.45
Log likelihood = -46.816374 — Prob > chi2 = 0.0000

Wantstartbusinessorno	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.0315518	.1760089	0.18	0.858	-.3134192	.3765229
Gender	-.1860482	.4561087	-0.41	0.683	-1.080005	.7079084
Studenteducationlevel	.1017619	.3796223	0.27	0.789	-.642284	.8458079
Faculty_business	.5381729	.3530984	1.52	0.127	-.1538872	1.230233
Familyincome	.1796916	.0889879	2.02	0.043	.0052786	.3541046
MotivPartIncubProg	1.518845	.7041784	2.16	0.031	.1386805	2.899009
ParticipIncubProg	-1.988219	.7387628	-2.69	0.007	-3.436168	-.5402707
ComplateIncubProg	1.920773	.298314	6.44	0.000	1.336088	2.505457
EffectivnessBI	.3006696	.144167	2.09	0.037	.0181075	.5832316

The first set of results in Table 6.5 pertains to the independent variable of age. The study discovered that while age is not statistically significant, it does have a positive coefficient (.0315518), indicating that students aged 20 to 26 are more likely to start their own businesses. The literature on this variable has been reviewed extensively. These findings are consistent with those of Ernst & Young (2011), who found that over half of successful entrepreneurs start their own businesses between the ages of 20 and 29. (Ernst & Young, 2011, cited in Baidi & Suyanto, 2018). It is expected that younger students will be more entrepreneurial when this variable is considered since they have the requisite skills and opportunities to contribute to the development of entrepreneurship in Tajikistan.

The coefficient estimates for the following variable in Table 6.5., gender, show a negative relationship between gender and entrepreneurial intention. Several researchers found no discernible difference between men and women in terms of their desire to start

a business. For instance, Rahman et al. (2012) found that, to some extent, the entrepreneurial intention of female students is better than males, even though some male students have obtained some business experience (Rahman et al., 2012). On the other hand, some researchers argue that no substantial difference exists in entrepreneurial intention between male and female students, and both share the same entrepreneurial intention Gupta, (2009), Tanveer et al., (2013). A possible reason for this outcome is that the overall number of male and female students who participated in incubation programs is not equal. For instance, three-quarters of the participants were male (73%), while female participants accounted for only 23% percent. Therefore, the study did not find any significance regarding gender variables.

Turning to the next variable presented in Table 6.5., that of student education level, the results show no significance. However, they did return a positive coefficient and connection between graduate students and entrepreneurial intention. This means that most graduate students who participated and completed incubation programs have higher entrepreneurial intentions than undergraduate students.

Next, the results also show that the variable of studying in the faculty of business has no significance (0.127), but confidence is a positive coefficient. This finding supports previous research that college students who graduated with an entrepreneurial major are more likely to have entrepreneurial intentions and start new businesses than other students (Xu et al., 2020). This variable predicts that students majoring in entrepreneurship have a stronger intention for entrepreneurship.

The next variable, family income, shows a significant p-value (0.001) at a 99% level and a positive correlation with entrepreneurial intention. It can be seen in Table 5.5 that along with incubation programs, if the family income variable increases by one unit,

the probability of entrepreneurial intention increases by 0.17 percentage points. This result aligns with the findings of (Zeb et al., 2021, Xu et al., 2020, and Setti, 2018), who suggest that family income significantly affects students' entrepreneurial intention. In line with this, (Xu et al., 2020) found that students with higher family incomes are more likely to start their businesses. Moreover, Zeb et al. (2021) found that high family income significantly affects the entrepreneurial intention of students (Zeb et al., 2021). By considering this variable, the results shows that high family income influences the entrepreneurial intention of students to start a business in Tajikistan.

Motivation for participation in the incubation program is another variable with a positive coefficient (1.518845), and the p-value is statistically significant (0.0031) at a 4% level. According to the model, this variable is a dummy variable (1 = student motivated to become entrepreneur = 1, otherwise = 0), with 35% motivated to become an entrepreneur and only 65% motivated by another's motivation (see figure 4.5). The result suggests that students who participated in and completed incubation programs have a high intention to become entrepreneurs. A person with an intention toward entrepreneurship is obliged to make decisions and does not know how to give up on his goals. For instance, if a person has the motivation to "become an entrepreneur," they will keep trying without giving up on obtaining this goal. This capacity is called the "need for achievement" in psychology (see Asmara et al., 2016). Moreover, Altinay et al. (2012) and Joseph (2017) state that one of the psychological traits that would drive a person to pursue entrepreneurship is a need for achievement (Altinay et al., 2012, Joseph, 2017). In this regard, a high need for achievement is linked to a desire to become an entrepreneur (Zhou et al., 2019). It can be said that this outcome is consistent with the findings of Choto (2015), who determined that people who participate in and complete

incubation programs have a higher need for achievement compared to those who do not participate in incubation programs.

Next, the variable that indicates the students' participation in the incubation program shows a significant p-value at a 70% level of confidence with a negative correlation with entrepreneurial intention. As the coefficient is negative, there is no direct connection between students' participation in incubation programs and their entrepreneurial intention to start a new business. Based on the results from the Probit regression, it is possible to infer that those students who did not complete the incubation program (i.e., students who are in the process of incubation but did not yet complete the program) probably did not obtain any benefits from the incubation program. This finding agrees with Choto's study that people who did not complete an incubation program did not benefit in any way.

Similarly, one of the important variables in this study is the entrepreneurial intention of those students who completed incubation programs. This variable has a direct connection with the second hypothesis of this study. The results show a positive correlation (1.920773) which is highly significant of the p-value (0.001). It can be seen in Table 6.5 that if the completion incubation programs among students increased by one unit, the probability of entrepreneurial intention to start a business increases by 1.9 percentage points. This means that completion incubation program programs are positively associated with students' entrepreneurial intentions. This finding agrees with some past studies, namely, Zreen et al. (2019), Martínez et al. (2018), and Jansen et al., (2015), among others. For instance, a study by Zreen et al. (2019) on the influence of business incubation and internship programs on entrepreneurial intention among university students in Pakistan (Zreen et al., 2019) found that business incubation

programs and internship programs have a positive and significant effect on the entrepreneurial intention of students (Zreen et al., 2019). The same conclusion is reached by Jansen et al. (2015) who found that incubation programs significantly impact entrepreneurial intent, implying that the more enthusiastic students are about participating in BI programs, the more likely they are to start a business (Jansen et al., 2015).

Lastly, the variable concerning the effectiveness of business incubators shows a highly significant p-value at a 99% level of confidence with a positive correlation with entrepreneurial intention. It follows from Table 6.5 that if the effectiveness of different services and facilities provided by business incubators increases by one unit, the probability of starting a business increases by 0.30% points. This phenomenon could be explained by the fact that increasing the effectiveness of different services provided by business incubators in Tajikistan will contribute to promoting the growth of start-ups.

In addition, in the Probit quantitative model study outlined above, the researcher used the Logit model to examine all variables. The results obtained by using the Logit model are equal to those obtained by applying the Probit model, indicating that the results of the two models are identical, and the overall fitting results of the models are also excellent (see the complete results of the Logit model in Appendix VIII).

Furthermore, the Logit model used robustness to test the variables in this study to determine the durability of the Probit model indicated above. The results show that out of nine independent variables (for assessing the hypothesis of impact of incubation programs), five are statistically significant to students' entrepreneurial intention (the dependent variable) to start a business: Family income, motivation for participation in incubation program, participate in incubation programs, complete incubation programs

and effectiveness of business incubators (see the results of the Robustness test in Appendix IX).

6.5.2 Ordered Probit regression results for effectiveness and challenges of business incubators

Since the objective of this section is to review the effectiveness of services provided by business incubators and the challenges faced by BIs in Tajikistan, the Ordered Probit and Logit model was used for specific reasons. Firstly, the data was prepared by combining each ordinal variable (category of services provided by business incubators) and the categorical variable (challenges faced by business incubators) (see section variables and specification). Secondly, the Ordered regression model often gives an excellent fit for ordinal and categorical data. Therefore, the explanatory variables were used to determine the effectiveness of business incubators as a dependent variable.

The results of the Ordered Probit Model show that, out of the eight variables, four of them are statistically significant. The results obtained by applying the Ordered Probit model (the likelihood ratio chi-square of 193,97 with 8 degrees of freedom and the p-value of 0.0001) means that the model is statistically significant, and the overall fitting result of the model is also very good. The results from the Ordered Probit model are presented in Table 6.6 below, with the results for each variable discussed in turn in the following paragraphs.

Table 6.5 ***Results of the Ordered Probit estimate on the effectiveness of business incubators on startup growth***

Ordered probit regression	Number of obs	=	239
	LR chi2(8)	=	193.97
	Prob > chi2	=	0.0000
Log likelihood = -253.0536	Pseudo R2	=	0.2771

Effectiveness_BIforstartupgro	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Infrastructurefacilities	.1525295	.0439785	3.47	0.001	.0663331	.2387259
Marketingservices	.1090828	.0563666	1.94	0.053	-.0013937	.2195594
Trainingprogram	.1272721	.0530621	2.40	0.016	.0232722	.231272
Networkingservices	.0268612	.0825973	0.33	0.745	-.1350265	.1887488
Consultancyservices	.070107	.0527444	1.33	0.184	-.0332701	.1734842
BIchallenge_funding	.4686907	.2217837	2.11	0.035	.0340025	.9033788
BIchallenge_infrastructu	.2345196	.2455895	0.95	0.340	-.246827	.7158662
BIchallenge_skills	.3683476	.301906	1.22	0.222	-.2233774	.9600725

In Table 6.6 the first result concerns the independent variable of infrastructure facilities. Based on the outcomes of the Ordered Probit regressions, the study found a strong association between infrastructure facility support and the effectiveness of business incubators for the growth of startups in Tajikistan. The result shows a positive coefficient (.1522295), and the p-value is statistically significant (0.0001) at a 99% level. The positive coefficient value implies that a one-unit increase in the infrastructure facilities leads to a rise in the effectiveness of business incubators for the growth of startups by 0.152 percent. This result is in line with the findings of Njau et al. (2019), Jamil, et al. (2017) & Mahmood, Jamil, et al., (2017) who proposed that the role of business incubators in providing infrastructure facilities is effective for incubator performance, business success and the development of entrepreneurship. Moreover, this finding suggests that access to infrastructure facilities may be one of the factors driving startups to seek incubator support.

Furthermore, this could be attributed to the fact that most startup projects in Tajikistan rely on consent for infrastructure facilities, especially office space. In addition, this means that infrastructure facility support is one of the essential services provided by business incubators in Tajikistan as it continues to develop. Since access to infrastructure facilities support contributes to promoting startups growth, it would be critical for business incubators in Tajikistan to improve these services to achieve a higher impact on creating new startups in the context of business incubators.

In terms of the following variable in Table 5.6., that of marketing services, coefficient estimates indicate a positive correlation between the provision of marketing services and the effectiveness of business incubators for startup growth in Tajikistan (coef=.1090828, $p<0.053$). Since the correlation value was 0.53, the implication is that no statistically positive correlation exists between marketing services and effectiveness of business incubators on the growth of startups. This study has found that, at the present time, very little research exists on the effectiveness of business incubators in providing marketing services. Therefore, marketing services provided by business incubators in Tajikistan are unquestionably essential, particularly for promoting startup growth. Therefore, by hiring more qualified and experienced marketing professionals, incubators can improve their performance and meet tenants' expectations.

Next, the results show that the variable of training support is statistically significant ($r=0.127$, $p<0.016$). The coefficient value was positive, meaning that there is a significant and positive correlation between the provision of the training program and the effectiveness of business incubators for startup growth in Tajikistan. This implies that a one-unit increase in the services of the training program leads to an increase in the effectiveness of business incubators for startup growth 0.127%. This finding concurs

with previous studies by Li et al. (2020) and Ahmed et al. (2020). For instance, a study by Li et al. (2020) that focused on the role of business incubators in promoting entrepreneurship found that, along with financial support, networking services provided by business incubators, training programs play an effective mediating role in the development of entrepreneurship. Li et al., (2020) continues and posits that business startups mediate the relationship between various factors such as networking services, financial support, training programs, and entrepreneurship development (Li et al., 2019). According to Li's findings, training programs positively impact the development of entrepreneurship (Li et al., 2020). The same conclusion is reached by Ahmed et al., (2020), who found that training programs provided by business incubators have a positive effect on promoting the development of entrepreneurship. These findings suggest that training programs offered by business incubators in Tajikistan could assist potential candidates to take advantage of new startup business opportunities, inspire them to develop new business plans, and help existing students enhance their competencies or address specific business difficulties.

The next variable, networking services. has no significance but shows a positive coefficient. It implies no statistically significant correlation between the provision of networking services and the effectiveness of business incubators in Tajikistan (coef= 0.268612, p= 0.745). This finding shows that, while incubators place a high value on networking services, Tajikistan incubators rank low in providing networking services that lead to the effectiveness of business incubators for startup growth. To increase incubators' access to market networks, incubator administrators should take a proactive approach to secure access. Exhibits and conferences hosted by joint donor organizations

and successful entrepreneurs would provide incubators with the opportunity to promote themselves.

Another independent variable, that of consultancy services, shows an insignificant p-value with a positive correlation for the effectiveness of business incubators. The coefficient value is not significant, implying that there is no statistically significant correlation between the provision of consultancy services and the effectiveness of business incubators in Tajikistan. These findings concur with the results of Shahzad et al., (2012) who found a low rating for consultancy services on the effectiveness of business incubators among all five services in Pakistan (Shahzad et al., 2012b). The possible reason for insignificant consultancy services on the effectiveness of business incubators could be that the consultancy services provided by incubators in Tajikistan do not allow startups to bridge the gap in their knowledge or experience needed to make better decisions.

Next, one of the most important variables in this analysis is the challenges faced by business incubators in Tajikistan, which directly relates to the fourth hypothesis of this study. As Table 5.6 shows, the first challenge concerns the lack of funding for independent variables. According to the results of Ordered Probit regressions, lack of funding is statistically significant (0.035) with a positive coefficient (.4686907).

One possible explanation for such an outcome is that business incubators in Tajikistan do not have enough seed capital but rely on donor organization grants. Development partners, including the UNDP, JICA, DGIZ, the Center for Rural Development and Finance, and other development partners, have allocated a significant amount of money to develop business incubators. In Tajikistan, most donor organizations, development partners, and business associations also carry out activities

with business incubators through some short-term projects. However, it is a source of concern as over-reliance on grants from donor agencies can create problems for the success of startups in the long term. University business incubators in Tajikistan are also primarily funded by themselves and government and private agencies. Except for this result, it could be argued that the government needs to allocate more budget for business incubators to improve economic circumstances and support entrepreneurial growth (Ahmed et al., 2020). However, business incubation is in an early stage of development in Tajikistan, and the Government of Tajikistan allocates insufficient funding for its development. Therefore, the government of Tajikistan needs to allocate a significant amount of money for the development and sustainability of business incubators, as over-reliance on grants from donor agencies can create problems for the success of startups in the long term.

Furthermore, the results presented in Table 5.6 show that the lack of incubator facilities and infrastructure variable is not significant, but the coefficient for this variable is positive. This could be explained by the fact that infrastructure facility support is one of the essential services provided by business incubators in Tajikistan as it continues to develop. Furthermore, this result could be attributed to the fact that the State Institution "Business Incubator" established its centers in Dushanbe, Kulyab, Bokhtar, Khorog, and Khujand in December 2018, and are currently operating there. Alongside these centers, some of the key universities in Tajikistan have taken the initiative and established their own business incubators and techno parks near university campuses.

According to the State Institution "Business Incubator," business incubator cells have already been launched in 5 universities. Besides, the results for the variable of infrastructure facilities support shows a positive correlation between the infrastructure

facilities and the effectiveness of business incubators for startup growth in Tajikistan. A possible explanation for the efforts and outcomes of the BIT is that the challenges of provision of infrastructure facilities faced by Business Incubators in Tajikistan may have been resolved to some extent. However, this is surprising because, as Figure 4.8 shows, the infrastructure facilities are the second most significant challenge for business incubators, among others.

Finally, Table 6.6 shows that the variable concerning lack of knowledge and business skills is not significant, but the coefficient for this variable is positive. A correlation analysis shows no relationship between the challenges of business incubators regarding lack of knowledge and business skills and the effectiveness of business incubators for startup growth. This can probably be explained by the fact that business incubators in Tajikistan frequently lack the required knowledge and skills that adequately contribute to the development of the startups. In support of this argument, Lalkaka, (2002) points out that most business incubator management employees do not have entrepreneurial skills and experience, leading to business incubators failing to give the necessary support to startups (Lalkaka, 2002).

Apart from above result, the researcher employed the Logit Ordered model to investigate all variables in the Probit quantitative model described above. The results produced with the Logit Ordered model are similar to those obtained from the Probit Ordered model, demonstrating that the results of the two models are identical and that the overall fitting results of the models are likewise excellent.

Furthermore, the Logit Ordered model employed robustness to evaluate the variables in this study to determine the Probit Logit Ordered model's durability. The findings demonstrated that four of the nine independent variables (used to test the

hypothesis of services provided by business incubators and challenges faced by them) are statistically significant in predicting the effectiveness of business incubators for startup. growth (the dependent variable). These include infrastructure facilities, marketing services, training programs, and the challenges of business incubator due to a lack of funding. For the full results of the Logit analysis, see Appendix X.

CHAPTER 7: CONCLUSION AND POLICY RECOMMENDATIONS

7.1 Overview

By way of conclusion, this chapter will now return to consider the research objectives of this study, considering in turn the specific objectives and hypotheses outlined in Chapter 1 (see pages 11 and 12) and, with these in mind, it will propose some preliminary conclusions with reference to the results presented in Chapters 4 and 5 and preceding sections. This chapter will be organized broadly into three sections beginning with an examination of how the findings address the objectives and hypotheses of the study, followed by the theoretical and practical implications of the results that were obtained and, finally, recommendations on future directions for research in this area.

7.2 Conclusions on the research objectives

Turning firstly to the objectives of this study, the first (I.) research objective was, “What is the level of student's awareness about incubation programs?”. The findings suggest that less than half of the respondents surveyed (39%) are aware of incubation

programs in Tajikistan. The remainder are not aware of incubation programs. Moreover, the findings show that from the overall number of students who demonstrated awareness of the existence of incubation programs, more than half of the male students (73%) participated in incubation programs, while only 23% of women participated in them. Additionally, correlation analysis also reveals that the awareness of male students is generally higher than female students regarding incubation programs.

The findings also confirm positive relationships between the faculty of business (students majoring in entrepreneurship) and awareness of incubation programs in Tajikistan, as shown in appendix (see page 122). What this means is that students majoring in entrepreneurship are more aware of incubation programs. They found that students who major in other subjects have a weak understanding and are less knowledgeable about entrepreneurship. Therefore, it is possible to conclude that improving and strengthening the learning entrepreneurship education in university faculties is very important.

Beyond this finding, this study discovered a significant correlation between family income and awareness of business incubators, for instance, students who have a higher family income have a heightened awareness of incubation programs. This means that students who come from families with a yearly income that is higher than the regional average can acquire financial support and security for start-ups through family networks, boosting their entrepreneurial enthusiasm and increasing their chances of success.

Furthermore, the analysis revealed a close relationship between working experience and awareness of incubation programs. Therefore, it is possible to conclude that students who have full-time or part-time jobs are more likely to be aware of incubation programs than those who do not have such jobs.

In terms of the second objective (II.) concerning “the impact of the incubation programs on the entrepreneurial plans of university students”, the results show that along with completion of incubation programs, other factors such as family income, motivation, and effectiveness of business incubators significantly affect students' entrepreneurial plans. The findings indicate that students with higher family incomes have higher entrepreneurial intentions and are more likely to start businesses.

In addition, the results show that those students who completed incubation programs had a higher intention to become entrepreneurs than those who did not complete incubation programs. The findings also revealed that those students who participated in the incubation program and did not complete the incubation program (i.e., students who are in the process of incubation and did not complete the incubation program) do not have the entrepreneurial intention and did not benefit from the incubation program. Therefore, students should not consider business incubation programs a waste of time. Instead, they should participate and stay in the programs until they complete them. The growth objective can be attained through incubation programs (Choto, 2015).

Therefore, business incubators in Tajikistan should extend their services to include specialized loan guarantee programs to strengthen their position as financial intermediaries by reducing the risk of a lack of collateral, which tenants have identified as the most significant obstacle to financial inclusion.

Regarding the third objective (III.) of the “the effectiveness of business incubators for startups growth”, the findings showed a significant relation between two services such as infrastructure facilities support, training programs, and the effectiveness of business incubators on the growth of startups. These findings suggest that infrastructure

facilities support, and training programs provided by business incubators in Tajikistan could assist potential candidates to take advantage of new startup business opportunities, inspire them to develop new business plans, and help existing students enhance their competencies or address specific business difficulties.

Finally concerning the fourth objective (IV), that is, “the main challenges faced by business incubators”, the result showed a positive correlation between the challenges of business incubators regarding lack of funding and the effectiveness of business incubators on the growth of startups. Therefore, it is possible to conclude that the lack of funding faced by business incubators does not have a negative effect on the effectiveness of business incubators for the growth of start-ups.

7.3 Conclusions on the hypotheses of the study

To what extent, then, do the findings presented in Chapter 4 validate these hypotheses? In terms of the first hypothesis (**H_1**), that is, whether it is “likely that students majoring in entrepreneurship in universities have a higher level of awareness about incubation than those not majoring”, the findings indicate that this hypothesis is basically proved correct. The analysis of the model's coefficients shows that H_1 was rejected, and the alternative hypothesis was accepted. Thus, students majoring in entrepreneurship at university generally have a higher level of awareness about incubation programs than those do not. However, the results also showed, unexpectedly, that factors such as gender, family income, and work experience significantly influenced students' awareness of incubation programs.

Secondly, H_2 stated that "Incubation programs will significantly influence students' entrepreneurial intention." The result of the significant joint test revealed that the hypothesis (**H_2**) was rejected, and the alternative hypothesis was accepted. Hence, those students who complete incubation programs have a higher entrepreneurial intention to start a business. Moreover, the results indicate that, along with the completion of incubation programs, other factors such as family income, motivation, and effectiveness of business incubators significantly affect students' entrepreneurial intention. Therefore, this study can conclude that incubation programs have a significant effect on the entrepreneurial intention of students in Tajikistan.

Concerning the third hypothesis (**H_3**) that is, whether "there is a significant relation between infrastructure facilities support, marketing services, training programs, and the effectiveness of business incubators on the growth of startups". The findings indicate that this hypothesis is not proven correct. The results of the significance test of the regression model indicated that hypothesis (**H_3**) was not adopted. As the findings show, there exists only a positive correlation between two services, such as infrastructure facilities support, and training programs, and the effectiveness of business incubators for the growth of startups in Tajikistan. However, the findings revealed no existing relationship between marketing, networking and consultancy services and the effectiveness of business incubators for the growth of startups.

Finally, **H_4** indicated that "Financial challenges that BIs face will negatively influence the growth of startups." The results of the significance test of the regression model revealed that this hypothesis (**H_4**) is, statistically, positively influential. Therefore, this hypothesis cannot be proved correct because there is no negative relationship

between financial challenges and the effectiveness of business incubators for the growth of startups.

7.4 Implications and recommendations

Turning now to the implications of this research, several theoretical and practical implications present themselves, which may be interest to scholars and policy makers, especially those involved with business development in other Central Asian developing countries with comparable cultural and economic backgrounds.

First, in terms of the **theoretical implications**, this study may be one of the first to use the Probit and Logit models to examine awareness and impact of incubation programs, and almost certainly the first to apply these models to understand the operation of business incubator programs in the Republic of Tajikistan. Additionally, the present study extends the application of the Probit and Logit models to analyze the impact of participation and completion of incubation programs on entrepreneurial intention, and the effectiveness of business incubators on the growth of startups through the services provided by business incubators. By doing so, it contributes to the growing body of literature on business incubators. Furthermore, the results of the validity and hypothesis testing presented in this study demonstrate that this model may accurately anticipate the awareness, impact, and effectiveness of business incubators. Finally, the findings of the study might serve as a springboard for future researchers in similar fields to conduct in-depth analyses of the impact of incubation programs and the effectiveness of business incubators in other developed countries.

Secondly, in terms of the **practical implications**, this study presented several findings that are likely to be of practical benefit to the stakeholders involved with BIs in

Tajikistan, namely business incubator managers, government policymakers, university faculty and administrators, and students. For instance, the findings of this study may assist incubation centers, universities, and startup organizations in raising awareness of incubation programs and launching training programs to promote startup growth. In the same way, the findings may be of use to legislators and policymakers in determining what should be emphasized in legislation to improve existing policies on entrepreneurship as well as business incubators in Tajikistan. Additionally, this research also aids the government in establishing a unique framework for allocating more budget, directing funds from financial institution and donors to incubation programs and establish new business incubation centers. Finally, the findings of this study will assist students by providing them with new business opportunities and clarifying the relevance of specialized training programs in promoting their startup's growth. For further recommendations on the application of the findings of this study, the reader is directed to Appendix XIII on p.129.

7.5 Future directions for research

Considering the findings of this research, several topics present themselves as possible directions for future research in the area of business incubators.

Firstly, it would be useful to expand the focus of the current study to include the entire universities system in Tajikistan. There are many students in other universities who might also be aware of the existence of incubation programs or have participated in incubation programs like those described in this study. Thus, it would be of some utility to broaden the scope of this research.

Moreover, it may also be necessary to extend the scope of this research beyond students. The impact of business incubation programs on a grouping of similar, such as incubators tenants, startups, survivalist entrepreneurs, and SMEs in Tajikistan, should also be examined. Furthermore, future research might also consider another exciting area, such as: how business incubators can mediate the relationship between entrepreneurship education and entrepreneurship development and how government policy can moderate the relationship between business incubators and entrepreneurship development in Tajikistan.

Lastly, research could be directed towards measuring the effectiveness of business incubation programs on similar groups of subjects such as the effectiveness of business incubator services among incubators tenants, startups, survivalist entrepreneurs, and women entrepreneurs in Tajikistan.

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Appendices

Appendix I Questionnaires

Hello dear respondent!
My name is **Nuralizoda Umarali** and I kindly request you to answer this questionnaire about business incubators in Tajikistan.
Purpose: The purpose of this questionnaire is to find out the level of understanding and opinion of Tajikistan's students on business incubators activities. Your response is very significant for doing a national wide study in this topic and will help to the process of further promoting entrepreneurship and creating new business start-ups opportunities in Tajikistan.
Moreover, your response also fulfilling the completion of my Master thesis with a real statistical information and can be apply as a base source for future studies as well.
If you agree to participate in research, please complete this survey. The result of this survey will be used for my research.
Thank you very much, in advance for your cooperation.
In order to answer the questions below you need to choose appropriate answer and circle or write in the brackets.

1. Social Status Age _____ Gender ☐Male ☐Female Marital status ☐Single ☐Married ☐Widowed ☐Divorced	**2. Students status** ☐Full-time ☐Part-time
3. Work status ☐Full time ☐Part-time ☐Not working	**4. Student education level** ☐Undergraduate ☐Graduate
5. Year of your education ☐First-year ☐Second-year ☐Third-year ☐ Fourth-year	**6. Faculty and professional?** ☐Economics ☐Business and Commerce ☐Lawyer ☐IT ☐Other, please specify_____
7. Place of residence ☐Dushanbe ☐Sughd ☐Khatlon ☐GBAO ☐Districts of Republican Subordination	
8. Education of your father ☐Graduated Primary Education	**9. Education of mother** ☐Graduated Primary Education

☐Secondary Education ☐Vocational School ☐University/ College Degree ☐Master Level Degree ☐Doctoral Level Degree	☐Secondary Education ☐Vocational School ☐University/ College Degree ☐Master Level Degree ☐Doctoral Level Degree
10. **What's your father's occupation?** ☐Government Employee ☐Private Employee ☐Self-Business ☐Unemployed ☐Other, please specify_____	**11. What is your mother's occupation?** ☐Government Employee ☐Private Employee ☐Self-Business ☐Unemployed ☐Other, please specify_____
11. Income in a month Number of employed people in your family: _____ Number of unemployed people in your family: _____ What is your family household income per month? **(Tajik somoni)** Less than 999 From 1000 - 1999 From 2000 - 2999 From 3000 - 3999 4000 - 4999 Over 5000	
12. Did you have any information about the business incubator before? ☐Yes ☐No	**13. How did you get to know about business incubator?** ☐Business incubation ☐Seminar/Training course/incubation program ☐ Workshops ☐Academic course ☐Templates/ Brochure ☐Mass Media/ Newspaper ☐Self-study ☐Internet

	☐Other, please specify_____ _____
14. Are you aware of the existence of incubation support in Tajikistan? ☐Yes ☐No	**15. Did you participate in the incubation program and did you complete it?** ☐ Yes (complete) ☐Yes (did not complete) ☐No
16. What factor motivated you to participate in the incubation program? ☐ To get support and assistance after completion of incubation program ☐ To become entrepreneur ☐ Lack of skills ☐Other, please specify_____	**17. What kind of support do you require from a business incubator?** ☐Financial support ☐ Co-working spaces, facility support ☐Networking opportunities ☐ Training to develop skills ☐Counseling support ☐ Other please specify_____ _
18. If you participated in an incubator program, did it help you for setting up your own businesses? ☐Strongly disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree	**19. What challenges do you face in servicing business incubators?** ☐Lack of knowledge and business skills ☐Lack of funding ☐Lack of incubator facilities and infrastructure ☐Lack of proper incubator administration ☐Lack of qualified employees ☐ Other please specify_____ __

Please answer the following questions if you have information about the business incubator.

20. Do you have entrepreneurial skills in starting up a business? ☐Very low ☐Low	**21. Have you ever had business experience before?** ☐Not at all ☐Only a little

☐Average ☐High ☐Very high	☐To some extent ☐Much ☐Very much
22. In your opinion, what are the main challenges do entrepreneurs face in running their businesses? ☐ Financial challenges ☐ Government regulation ☐ Infrastructure ☐ Entrepreneurial knowledge ☐Other, please specify_____	**23. Is business incubators support important for students to launch businesses?** ☐Not at all important ☐Slightly important ☐Neutral ☐Moderately important ☐Extremely important
24. In your opinion, what kind of business incubator support is important for setting up businesses? ☐ None ☐ Financial support ☐ Office space, facility support ☐ Training support ☐ Networking support ☐ Counseling support ☐Other please specify_____	**25. Would you like to start your own business if you found a good environmental business?** ☐ Yes ☐No

Please answer the following questions if you participated in the incubation program.

26. Do you think are incubation services effective for the growth of startups? ☐ Not at all effective ☐ Little effective ☐ Somewhat effective ☐ Moderately effective ☐ Very effective

Infrastructure

27. BIs assist in the provision of affordable/flexible infrastructure and office facilities. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree	**28. BIs assist in creating the business at the best locations.** ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

☐ Strongly agree	
29. Business incubators assist in obtaining high-quality office equipment. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	**30. BI makes it easier to share office facilities.** ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
31. Business incubators create a free or low-cost work environment. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	

Marketing services

32. Business incubators assist in the provision of opportunities markets both local and international. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	**33. Bis provides exhibition space design for business.** ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
34. Business incubators provide a platform for entrepreneurs to participate in display and business fairs. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	

Training Program

35. Business incubators help in developing and strengthening skills and capacity-building opportunities. ☐ Strongly disagree	**36. Business incubators assist in improving skills for product development.** ☐ Strongly disagree

☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
37. Business incubators assist in improving skills for business management. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	**38. Business incubators provide help in improving business and marketing skills.** ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
39. Business incubators assist in providing customized training programs and skills. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	

Networking services

40. Business incubators provide timely updates information about exhibition rules and specific sectors. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	**41. Business incubators provide assist in networking with chambers of commerce and business associations.** ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
42. Business incubators provide updated information about technological advancements. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	

Consultancy Services

43. Business incubators provide consultancy services for determining appropriate projects. ☐ Strongly disagree	**44. Business incubators provide assist in the development of marketing and management strategies.** ☐ Strongly disagree

☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
45. Business incubators provide consultancy services for designing business cards, brochures, and websites. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	**46. Business incubators provide consultancy services on managing cash and getting finance through banks.** ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree
47. Business incubators provide help businesses in using accounting software. ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree	

Appendix II Characteristics of surveyed students

Characteristics	**Number**	**%**
Gender		
Male	470	65.6
Female	246	34.4
Total	**716**	**100**
Marital Status		
Single	572	79.9
Married	127	17.7
Divorced	11	1.5
Widowed	6	0.8
Total	**716**	**100**

Age		
19-20	261	36.5
21-22	231	32.2
23-24	133	18.6
25-26	48	6.7
27+	43	6.0
Total	**716**	**100**
Student status		
Full time	545	76.1
Part time	171	23.9
Total	**716**	**100**
Work status		
Full time	82	11.5
Part-time	214	29.9
Not working	420	58.7
Total	**716**	**100**
Student education level		
Graduate	198	27.7
Undergraduate	518	72.3
Total	**716**	**100**
Faculty and professional		
Economics	527	73.6
Business and Commerce	111	15.5
Lawyer	12	1.7
IT	62	8.7
Low of economics	1	0.1
History and lawyer	2	0.3
International relationship	1	0.1
Total	**716**	**100**
Place of residence		
Dushanbe	223	31.1
Sughd	193	27.0
Khatlon	168	23.5
GBAO	74	10.3
Districts of Republican Subordination	58	8.1
Total	**716**	**100**
Father's occupation		
Government Employee	228	31.8
Private Employee	118	16.5
Self-Business	215	30.0
Unemployed	87	12.2
Immigrant	28	3.9
Pensioner	16	2.2
Died	10	1.4
Builder	5	0.7
Doctor	2	0.3

Teacher	2	0.3
Driver	2	0.3
Farmer	3	0.4
Total	**716**	**100**
Mather's occupation		
Government Employee	124	17.3
Private Employee	90	12.6
Self-Business	135	18.9
Unemployed	335	46.8
Immigrant	10	1.3
Pensioner	13	1.8
Died	3	0.4
Doctor	1	0.1
Teacher	1	0.1
Farmer	2	0.2
Tailor	2	0.2
Total	**716**	**100**
Family income		
Less than 999 somoni	57	7.9
1000-1999 somoni	147	20.5
2000-2999 somoni	129	18.1
3000-3999 somoni	105	14.7
4000-4999 somoni	64	8.9
Over 5000 somoni	214	29.9
Total	**716**	**100**

Table 3.4, Characteristics of Surveyed students

(Source: Field Survey, November-December 2021)

Appendix III Statistical information on characteristics of university students

As Table shows, the age of the surveyed students ranged from 19 to 41 years, and most of the students fall into the age group from 19 to 20 years old (36.5% of respondents), under the age of 21 to 22 years old 32.2%, from 23 to 24 years old 18.6% and between 25 to 26 years old 6.7% and 6% over 27 years old. Around 79.9% of the participants replied that they are single, 17.7% said they are married or partnered, 1.5% said they are divorced, and just 0.8% said they are widowed. More than half of the polled

students (76.1 percent) identified that they are studying full-time, with the remaining students (23.9%) identified as studying part-time.

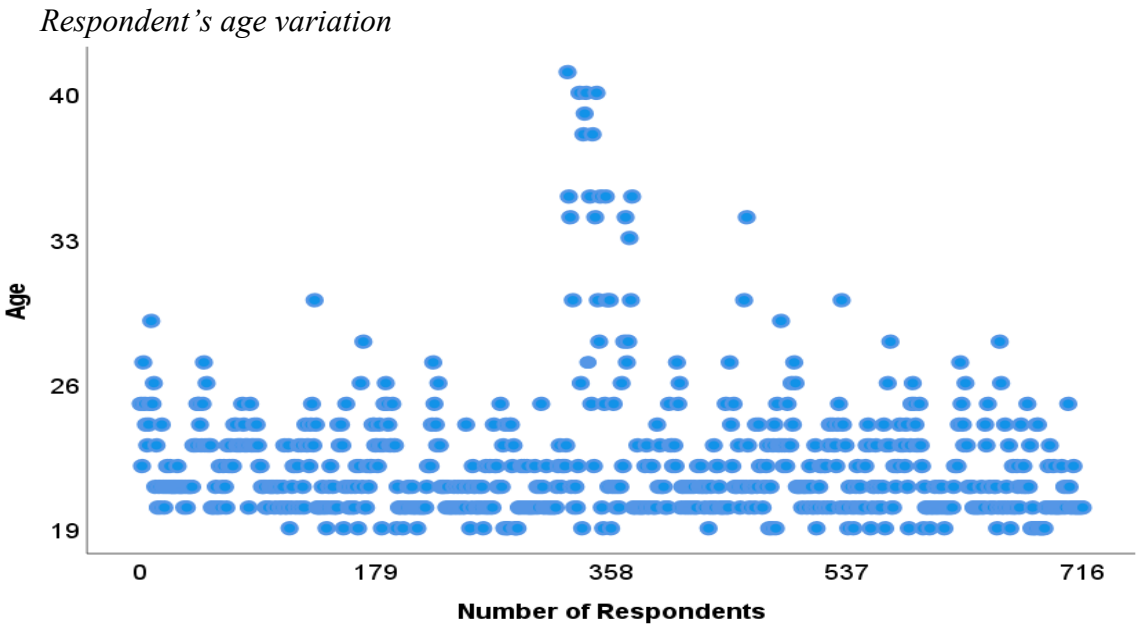

Figure 3.1, Surveyed Students Age Variation
(Source: Field Survey, November-December 2021)

Table 3.4 illustrates that the distribution of the total sample in male students is 65.6% while the minority, 34.4%, are female. Many researchers believed that gender, level of education, and faculty professional could affect entrepreneurial awareness and skills among students (Xanthopoulou & Megalooikonomou, 2020), (Chomentauskas et al., 2021), (Rahman et al., 2012) and among others.

Therefore, based on this sample of responses, we will provide insight and essential information on how the entrepreneurial awareness and entrepreneurial intentions of male and female students about the existence of the incubation program. This will be discussed in the next section.

Regarding education level, a minority of respondents (27.7%) identified as graduate students, and a significant group of respondents, (72.3%), were undergraduate students. The percentage of respondents who worked full time was 11.5%, the same as those who worked part-time 29.9%, and a larger portion did not work (58.7%). In terms of their departments and specializations, the table demonstrates that (73.6 %) of the students are studying within the specializations of the economics faculty, 15.5% within the business and commerce faculty, 8.7% within the information technology, 1.7% lawyer faculty, and then history and law (0.8%). Two other specializations (commercial law and international relations) account for the remaining students with 0.5 percent, respectively. Table 3.1 also shows that most of the students (31.1%) live in the capital city, Dushanbe, 27% live in Sughd, 23.5% live in Khatlon, 10.3 live in GBAO, and 8.1% live in other districts.

In addition, the table described the family occupation characteristics of the surveyed respondents. Regarding, the father's occupation the highest proportion was government employees, which accounted for 31.8%. The third-largest number (30%) were self-employed. Following this, private employees accounted for 16.5 percent, and the remainder were unemployed (12.2%). When we look at the table in detail regarding fathers' occupations, 9.5% can be categorized as other occupations. In terms of the mother's occupation a significant proportion (47.0 %) were unemployed, followed by self-employed (18.9 %). The percentage of government employees was 17%, and the percentage of private employees was 12.6%. Regarding mother's occupations, a small percentage can be categorized as others (4.4%).

The table also reports the monthly income of students' families. A substantial group of respondents indicated that their family income was over 5000 somonis (29.9%) while

the next largest group shows a family income between 1000-1999 somoni (20.5%). Additionally, some respondents reported family incomes of between 2000-2999 somoni (18.1%) between 3000-3999 somoni (14.7%) and others between 4000-4999 somoni (8.9%). A small group of respondents (7.9%) indicated that their family income is less than 999 somoni.

Appendix IV Variables and specification

Age: As mentioned above, most students (96%) are in the range of 19 to 26 years old (see Table 4.1). This variable has been reviewed extensively in the literature and these results are in line with the results of Ernst & Young (2011) who found that more than half of successful entrepreneurs start their businesses while they are between the ages of 20 and 29 years (Ernst & Young, 2011, cited in Baidi & Suyatno, 2018). Furthermore, Li (2019) mentions that entrepreneurship education, university entrepreneurship programs, and business incubators play a prominent role in developing and nurturing an entrepreneurial culture (Li, 2019). Ghina (2017) adds to this, arguing that entrepreneurship education might develop highly educated students in business with the capacity to create more job prospects (Ghina et al., 2017). It is expected that younger students will be more entrepreneurial when this variable is considered since they have the requisite skills and opportunities to contribute to the development of entrepreneurship in Tajikistan.

Gender: As is shown in table 3.4, male students account for 65.6% overall, while the minority, 34.4%, are female. Many researchers believed that gender could affect entrepreneurial awareness and skills among students see (Chomentauskas et al., 2021, Xu et al., 2020 Xanthopoulou & Megalooikonomou, 2020) among others. Therefore, based on this variable, this study will provide insights and essential information on the incubation programs awareness and entrepreneurial intentions of male and female students concerning the existence of the incubation program.

Work experience: Most studies show that university students with prior full-time or part-time job experience were more likely to pursue entrepreneurship than those students without experience (Nguyen, 2018, Keat et al., 2011, Kristiansen and Indarti, 2004, and among others). Therefore, in this variable, the study can observe that respondents who have full-time or part-time job are more likely to be aware of the existence of incubation programs and start their own business than those who do not have such job.

Student education level: In this regard, some empirical studies have found evidence that graduate students are more thoughtful and have a better awareness of the business environment due to their own work experience since they evaluate entrepreneurship with greater caution. However, undergraduate students who seem to be much more optimistic do not have a high-level awareness of the business environment for starting a business (Xanthopoulou & Megalooikonomou, 2020). Thus, according to this variable, the study will assess whether students with a graduate level of education have more awareness about incubation programs or have an intention to start a business or not.

Faculty and professional: A number of studies found that commerce students are more familiar and have a high-level awareness of entrepreneurship intention (Xu et al., 2020 and Kallany & Suresh, 2018). For instance, Kallany & Suresh (2018) compared students who studied entrepreneurship to students in other faculties. They found that nonmajor faculty students have a weak understanding and are least knowledgeable about entrepreneurship (Kallany & Suresh, 2018). In addition, (Xu et al., 2020) claim that college students who graduated with an entrepreneurial major are more likely to have entrepreneurship intentions and start new businesses than other students (Xu et al., 2020). This variable predicts that students majoring in entrepreneurship have more awareness of BIs and have a stronger intention for entrepreneurship.

Family income: Many recent studies (Zeb et al., 2021, (Xu et al., 2020, Setti, 2018) suggest that, along with demographic characteristics, other factors such as family income significantly affect students' entrepreneurial intention. In line with this, (Xu et al., 2020) found that students with higher family incomes are more likely to start their own businesses. Moreover, Zeb et al., (2021) found that high family income significantly affects the entrepreneurial intention of students (Zeb et al., 2021). By considering this variable, the researcher aims to determine whether high family income influences the entrepreneurial intention of students to start a business in Tajikistan.

Awareness of incubation programs: Many researchers propose teaching methods and techniques to increase students' entrepreneurial awareness and skills. For instance, researchers such as Bae et al., 2014 or Oosterbeek, van Praag, & Ijsselstein, 2010 (cited in Patricia & Silangen, 2016), explain that entrepreneurship education programs and business incubators aim to enhance and increase students' awareness of entrepreneurship, provide opportunities to students to develop their entrepreneurial

understanding and skills, educate students on how to apply theory to practice, and promote entrepreneurship as a viable career option. Moreover, Choto (2015) suggests that business incubators should launch programs and marketing initiatives to raise awareness of their services. The influence of incubation programs may be shown in this way (Choto, 2015). Thus, this variable has been taken to determine whether students are aware of the incubation programs provided by the BIs in Tajikistan. This type of investigation may also influence the attitude towards incubation programs in universities in Tajikistan.

Participation in incubation programs: The research of Choto (2015), who focused on the effect of business incubations on survivalist entrepreneurs in South Africa, showed that many survivalist entrepreneurs who did not participate in business incubation programs are not aware of such programs (Choto, 2015). The study also found a relationship between the number of employees who enrolled and completed the incubation program. Choto argues that those who registered and completed the business incubation program have an employment potential of 11 to 50 people compared with those who did not participate in incubation programs and have an employment potential of 1 to 10 people. By using this variable, the researcher aims to determine whether respondents who participated in incubation programs have an accurate understanding of BIT and want to start their business (compared to the rest of the respondents).

Motivation for participation incubation program

A person with an intention towards entrepreneurship is obliged to make decisions and does not know how to give up on his goals. For instance, if a person has a motivation to “become an entrepreneur,” they will keep trying without giving up on obtaining this goal. This capacity is called the "Need for achievement" in psychology (Asmara et al.,

2016). Moreover, Altinay et al., (2012) and Joseph, (2017) state that one of the psychological traits that would drive a person to pursue entrepreneurship is a need for achievement (Altinay et al., 2012, Joseph, 2017). In this regard, a high need for achievement is linked to a desire to become an entrepreneur (Zhou et al., 2019). There are three characteristics associated with a high need for achievement: making decisions, being willing to take risks within their capabilities, and the desire to learn continually (Asmara et al., 2016).

Previous studies have shown a significant influence in the need for achievement in connection with entrepreneurship intention (Akhtar & Iqbal, 2020, Baidi & Suyatno, 2018). As a result, it may be stated that university students with a high need for achievement are more likely to have a strong desire to start their own business. Thus, this variable is explored to determine whether the motivation "need for achievement" affects the entrepreneurial intention of students to become entrepreneurs.

Entrepreneurial skills: Many researchers propose teaching methods and techniques to increase students' entrepreneurial awareness and skills. For instance, researchers such as Bae et al., 2014, Fayolle & Gailly, 2009, Oosterbeek, van Praag, & Ijsselstein, 2010, explain that entrepreneurship education programs aim to enhance and increase students' awareness of entrepreneurship, provide opportunities to students to develop their entrepreneurial understanding and skills, educate students on how to apply theory to practice, and promote entrepreneurship as a viable career option (Patricia & Silangen, 2016). On the other hand, Mian 1997, Grimaldi and Grandi 2005, Aerts et al. 2007, and Pauwels et al. 2016, cited in Li et al. (2019), agree that, along with entrepreneurship education and university entrepreneurship programs, business incubators play a prominent role in developing and nurturing an entrepreneurial culture

and promoting entrepreneurship development in a country (Li et al., 2019). Eser (2018) shares the view that pre-incubation services at universities can increase students' entrepreneurial awareness, skills, and entrepreneurial activities. In Tajikistan, along with university entrepreneurship programs, international organizations and business incubators are implementing programs to improve the skills of young entrepreneurs, training courses on the basics of entrepreneurship, marketing, access to finance, and the provision of soft loans and grants. Eser (2018) believes that pre-incubation services at universities can increase students' entrepreneurial awareness, skills, and entrepreneurial activities. Thus, considering this variable, the study aims to determine whether students who have entrepreneurial skills want to start their business compared to students who have no entrepreneurial skills.

Business experience: Many recent studies (Kamil, 2021, Xu et al., 2020, or Setti, 2018) suggest that, along with entrepreneurship education and business incubation programs other factors such as entrepreneurial skills and experience significantly affect the entrepreneurial awareness and intention of students (Kamil, 2021, Xu et al., 2020, Setti, 2018). Therefore, in terms of this variable, this study can observe that more respondents who have business experience have awareness about incubation programs than those who do not have such experience.

Entrepreneurial intention: A number of studies investigated the role and influence of business incubation programs on entrepreneurial intention among university students (Gal, 2020, Li, 2019, Zreen et al., 2019) and among others. This variable is considered (i.e., the impact of incubation programs in Tajikistan) to determine whether university students who participated in incubation programs have entrepreneurial intentions. In this sampling, the study considers the decision of whether university

students “want to start their business or not”. It will be used as a dependent variable to evaluate the impact of various factors on the entrepreneurial intention of university students. University students in the sample either want to start a business or don't want to start a business.

Effectiveness of business incubators: A large body of research shows the positive effect of the roles and effectiveness of business incubators on promoting entrepreneurship development. A study by Mahmood et al. (2017) assessed the significance of the role of BIs in providing networking services and consultancy services to entrepreneurs, where business incubators work harder to deliver the desired results while providing training, infrastructure, and marketing (Mahmood, Jamil, et al., 2017). Research by Li et al. (2020) found a significant effect of the moderating role of BIs in providing networking services, financial support, and training programs to entrepreneurs and individuals, which are significant evidence for the development of entrepreneurship (Li et al., 2020). Therefore by choosing this dependent variable, it is necessary to identify which services provided by business incubators in Tajikistan are effective for the growth of startups.

Infrastructure facilities: Many studies confirm the effectiveness of infrastructure facilities in providing support to business incubators on the growth of businesses. For instance, Njau et al. (2019) found that infrastructure facility support is an essential incubation function and has a significant positive impact on forming technology-based new ventures (Njau et al., 2019). Additionally, researchers such as Mahmood, Jamil, et al. (2017) argue that the role of business incubators in providing infrastructure facilities is effective for the development of entrepreneurship (Mahmood, Jamil, et al., 2017). On the other hand, a study by Shahzad et al. (2012) shows that facilities services are more

effective for business success (Shahzad et al., 2012). The same conclusion is reached by Mahmood, Jianfeng, et al. (2017), who found that business incubator facilities services significantly affect an incubator's performance (Mahmood, Jianfeng, et al., 2017). Thus, by including this variable, the study will assess whether BIs in Tajikistan provide effective infrastructure facilities for the growth of startups.

Marketing services: This study has found that, at the present time, very little research exists on the effectiveness of business incubators in providing marketing services. Researchers such as Mahmood, Jamil, et al., (2017) and Shahzad et al., (2012) have focused their studies on the role and effectiveness of business incubators in supporting infrastructure facilities, marketing services, training programs, networking services, and consultancy services. Shahzad et al., (2012a) found that marketing services provided by business incubators are very effective for the success of businesses (Shahzad et al., 2012a). However, contrary to the result of the study of Mahmood, Jamil, et al., (2017) assessed the significance of the role and effectiveness of BIs in providing marketing services for the development of entrepreneurship (Mahmood, Jamil, et al., 2017). Therefore, considering this variable, the study aims to determine whether marketing services provided by business incubators are effective for the growth of startups.

Training program: Several studies show that business incubator training programs are effective for promoting entrepreneurship development. A study by Li et al., (2020) that focused on the role of business incubators in promoting entrepreneurship found that, along with financial support networking services provided by business incubators, training programs play an effective mediating role in the development of entrepreneurship. Li et al., (2020) continues and posits that business start-ups mediate

the relationship between networking services, financial support, training programs, and entrepreneurship development (Li et al., 2019). According to Li's findings, training programs positively impact the development of entrepreneurship (Li et al., 2020). The same conclusion is reached by Ahmed et al., (2020) who found that training programs provided by business incubators have a positive effect on promoting entrepreneurship development. By considering this variable, the researcher aims to determine whether training programs provided by business incubators in Tajikistan are effective for the growth of startups.

Networking services: Numerous studies have clearly shown the effectiveness of business incubators in providing networking services. A study by (Li et al., 2020) shows that the role of business incubators in providing networking is effective for the development of entrepreneurship. This is affirmed in a study by (Mahmood, Jamil, et al., 2017), who argues that networking services provided by business incubators are effective for promoting entrepreneurship development. Muiruri, (2020) further concludes that networking services positively impact the performance of start-up firms (Muiruri, 2020). Therefore, this variable is explored to determine whether the networking services provided by business incubators in Tajikistan are effective for business success.

Consultancy services: There is a limited body of evidence linking the effectiveness of business incubators in providing consultancy services. For example, Mahmood, Jamil, et al. (2017) found that the role of BIs is effective in providing consultancy services, if business incubators work harder to deliver the desired results while providing training, infrastructure, and marketing (Mahmood, Jamil, et al., 2017). In contrast, (Shahzad et al., 2012a) has shown that business incubators are less effective

in providing networking services among all five categories (Shahzad et al., 2012a). Therefore, in terms of this variable, this study can determine whether consultancy services provided by the business incubators in Tajikistan are effective for the success of business startups.

Challengess faced by business incubators A few studies have been published that demonstrate the challenges faced by business incubators. Based on data from surveys Choto, (2015) found that those entrepreneurs who attend incubation programs encounter fewer obstacles and challenges and have more access to finance and business networks than those who do not (Choto, 2015). The results of this study show that lack of access to scientific and technical information, supporting infrastructure, and adequate skills are business incubators' main challenges when helping surviving entrepreneurs. Similarly, in their study, (Bigirimana et al., 2015) found the same challenges affect business incubators, including financial constraints, lack of physical space, a lack of skilled staff, and lack of infrastructures such as roads, electricity, and telephone connections (Bigirimana et al., 2015). Similarly, a study by Lose & Tengeh, (2015) that focuses on the sustainability and challenges faced by business incubators in South Africa states that a lack of sponsorship and funding, advanced technological facilities (prototype), production space, and expansion in different areas are the main challenges faced by business incubators (Robertson K Tengeh, 2015).

Appendix V Cronbach's alpha test of variables

Test scale = mean(unstandardized items)

Item	Obs	Sign	item-test correlation	item-rest correlation	average interitem covariance	alpha
Age	716	+	0.2542	0.2133	5.602114	0.8870
Gender	716	-	-0.2433	-0.2621	5.732491	0.8896
Studentedu~l	716	+	0.1783	0.1640	5.660882	0.8879
Faculty_bu~s	716	+	0.2622	0.2510	5.651437	0.8876
Familyincome	716	+	0.4733	0.4202	5.429017	0.8834
Workingexp~e	716	+	0.5511	0.5386	5.590942	0.8862
Businessex~e	346	+	0.3708	0.3453	5.372801	0.8857
Entreprene~s	346	+	0.2467	0.2184	5.392481	0.8862
AwareIncub~g	346	+	0.6899	0.6823	5.382288	0.8858
MotivPartI~g	239	+	0.2773	0.2493	5.318733	0.8855
Participci~e	279	+	0.8863	0.8833	5.332034	0.8853
Complatein~b	278	+	0.6890	0.6813	5.331396	0.8853
BIchalleng~g	239	+	0.1385	0.1077	5.321752	0.8856
BIchalleng~u	239	-	0.0494	0.0228	5.3238	0.8856
BIchallen~ls	239	-	0.0452	0.0265	5.323882	0.8856
Wantstartb~o	346	+	0.7418	0.7358	5.367914	0.8854
Effectivne~I	239	+	0.7532	0.7201	5.288351	0.8849
Infrastruc~s	705	+	0.9865	0.9782	3.308031	0.8495
Marketings~s	705	+	0.9822	0.9762	4.059138	0.8532
Trainingpr~m	705	+	0.9895	0.9825	3.194184	0.8506
Networking~s	705	+	0.9886	0.9845	3.997379	0.8520
Consultanc~s	705	+	0.9895	0.9827	3.237292	0.8498

--more--

Appendix VI Probit and logit regression results for awareness of business incubators

Table 6.4 presents the results of the application of the Binary Probit Model. The outcome of explanatory variables was used to determine students' awareness of the incubation program as a dependent variable. The Binary Probit model results show that over 60% of the explanatory variables are accurate, with six of the seven variables being statistically significant. Therefore, it is safe to assume that the fitting effect of the model is also suitable for appraising the awareness of students about business incubators. Moreover, the likelihood chi-square ratio of 107,69 with 8 degrees of freedom and the p-value of 0.0001 reveals that the model is statistically significant. The results from the Binary Probit model are presented in Table 6.4 below with the results for each variable discussed in turn in the following paragraphs.

Table 6.4 ***Results of Probit estimate on the analysis of awareness of incubation programs***

Probit regression	Number of obs	=	346
	LR chi2(8)	=	107.69
	Prob > chi2	=	0.0000
Log likelihood = -116.20183	Pseudo R2	=	0.3166

AwareIncubProg	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.0128135	.1079592	0.12	0.906	-.1987826	.2244097
Gender	.7655749	.1886619	4.06	0.000	.3958044	1.135345
Studenteducationlevel	-.186456	.2604128	-0.72	0.474	-.6968558	.3239437
Faculty_business	.8291661	.3023865	2.74	0.006	.2364994	1.421833
Familyincome	.2230598	.065236	3.42	0.001	.0951995	.3509201
Workingexperience	1.213849	.2254499	5.38	0.000	.7719755	1.655723
Entrepreneurialskills	-.2325903	.1352508	-1.72	0.085	-.497677	.0324964
Businessexperience	.1251485	.1414093	0.89	0.376	-.1520086	.4023056
_cons	-.5363984	.3537801	-1.52	0.129	-1.229795	.1569978

Looking at Table 6.4, the first set of results concerns the independent variable of age. Based on the outcomes of Probit regressions, the study found that age is not statistically significant but has a positive coefficient (.0128835), meaning that students between the ages of 20 and 26 years are more likely to be aware of business incubation programs.

Regarding the next variable in Table 6.4., that of gender, coefficient estimates indicate a positive connection between gender and awareness. As the results show, gender has a positive coefficient (.7655749), and the p-value is statistically significant (0.0001) at a 99% level. In this model, the gender variable exhibits an increase by one

unit for male students and the probability of being aware of incubation programs increases by 0.8 percentage points. This outcome shows that male students have more entrepreneurial awareness than female students.

Another independent variable, student education level, has no significance, showing a negative coefficient of -.186456.

One of the essential variables in this analysis is the faculty of business which has a direct linkage with the first hypothesis of this study. The results show a positive correlation (.8291661) which is highly significant of the p-value (0.006), meaning that students majoring in entrepreneurship are more aware of incubation programs. The study assumes that those students who major in business have a higher level of awareness about incubation programs and have a better chance to develop and implement their business ideas in business incubators in Tajikistan.

Next, the results show that the variable of family income is statistically significant (0.001) at a 99% confidence level. This means that the higher the students' family income, the better the possibility of awareness of incubation programs.

The following variable of working experience has a significant and positive effect on entrepreneurial awareness. At a level of 99%, it is statistically significant (see Table 6.4). It implies a close relationship between working experience and awareness about incubation programs. Under the Probit model, the results for working experience effect shows that a one-unit increase in working experience variable increases the probability of awareness about business incubators by 1.213849. Therefore, in this variable, the study can observe that respondents who have full-time or part-time jobs are more likely to be aware of incubation programs than those who do not have such jobs.

Next, the variable that indicates the students' entrepreneurial skills shows a significant p-value at a 90% level of confidence with a negative correlation with awareness about incubation programs. With a negative coefficient, there appears to be no direct connection between entrepreneurial skills and understanding of incubation programs. Based on the results from the Probit regression it is possible to infer that, students with a higher level of entrepreneurial skill (accumulated during or before studying at University), probably engaged in entrepreneurship and don't have an interest in incubation programs. Moreover, it may be argued that such outcomes could be explained by the middle entrepreneurial skills of university students regarding business incubators.

Finally, the results in Table 6.4 show that the coefficient of the business experience variable is not significant, but the coefficient for this variable is positive. This is justified by the fact that the majority of respondents who have much business experience have more awareness about incubation programs than those who do not have such experience.

In addition to the Probit quantitative model analysis presented above, the researcher also analyzed all variables using the Logit model. It can be seen that the results obtained by the application of the Logit model are identical to those of the Probit model, which means that the results of the two models are exactly the same, and the overall fitting results of the models are also very high (for the full results of the Logit model analysis, see the table below).

Results of Logistic estimate on the analysis of awareness of business incubation programs

```
Logistic regression                             Number of obs     =        346
                                                LR chi2(8)        =     106.46
                                                Prob > chi2       =     0.0000
Log likelihood = -116.81457                     Pseudo R2         =     0.3130
```

AwareIncubProg	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.0073408	.1881469	0.04	0.969	-.3614203	.376102
Gender	1.338947	.3327655	4.02	0.000	.6867387	1.991156
Studenteducationlevel	-.2564946	.4627125	-0.55	0.579	-1.163394	.6504052
Faculty_business	1.482268	.5757863	2.57	0.010	.3537478	2.610789
Familyincome	.3971397	.1172436	3.39	0.001	.1673464	.6269329
Workingexperience	2.095179	.4076636	5.14	0.000	1.296173	2.894185
Entrepreneurialskills	-.384652	.2381909	-1.61	0.106	-.8514976	.0821936
Businessexperience	.234542	.2494538	0.94	0.347	-.2543785	.7234625
_cons	-1.056892	.6173559	-1.71	0.087	-2.266887	.1531037

Furthermore, to evaluate the durability of the Probit mentioned above model, the Logit model utilized robustness to test the variables in this study. Out of eight independent variables, five are statistically significant to students' awareness (dependent variable) of the existence of incubation programs: Gender, faculty of business, family income, working experience, and entrepreneurial skills. The results of the Robustness test can be viewed in the table below.

Results of Robustness test of awareness of business incubation programs

```
Probit regression                               Number of obs     =        346
                                                Wald chi2(8)      =      90.43
                                                Prob > chi2       =     0.0000
Log pseudolikelihood = -116.20183               Pseudo R2         =     0.3166
```

AwareIncubProg	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.0128135	.1053118	0.12	0.903	-.1935938	.2192209
Gender	.7655749	.1858682	4.12	0.000	.4012799	1.12987
Studenteducationlevel	-.186456	.2421758	-0.77	0.441	-.6611119	.2881998
Faculty_business	.8291661	.2975882	2.79	0.005	.2459039	1.412428
Familyincome	.2230598	.0629505	3.54	0.000	.0996791	.3464405
Workingexperience	1.213849	.1897701	6.40	0.000	.8419066	1.585792
Entrepreneurialskills	-.2325903	.1204577	-1.93	0.053	-.468683	.0035024
Businessexperience	.1251485	.136109	0.92	0.358	-.1416202	.3919171
_cons	-.5363984	.3535843	-1.52	0.129	-1.229411	.156614

Appendix VII *Result of Logistic estimates of impact of incubation programs on entrepreneurial intention*

Logistic regression	Number of obs	=	239
	Wald chi2(9)	=	58.62
Log likelihood = -47.315432	Prob > chi2	=	0.0000

Wantstartbusinessorno	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.0752458	.3252168	0.23	0.817	-.5621673	.712659
Gender	-.294615	.8045205	-0.37	0.714	-1.871446	1.282216
Studenteducationlevel	.0824832	.7058924	0.12	0.907	-1.30104	1.466007
Faculty_business	.9427061	.6399442	1.47	0.141	-.3115615	2.196974
Familyincome	.3019419	.1665106	1.81	0.070	-.0244128	.6282966
MotivPartIncubProg	2.670952	1.202844	2.22	0.026	.313421	5.028483
ParticipIncubProg	-3.730514	1.368463	-2.73	0.006	-6.412652	-1.048376
ComplateIncubProg	3.380283	.5534814	6.11	0.000	2.29548	4.465087
EffectivnessBI	.6154077	.2832515	2.17	0.030	.0602448	1.17057

Appendix VIII *Result of Robustness test of impact of incubation programs on entrepreneurial intention*

Probit regression	Number of obs	=	239
	Wald chi2(9)	=	118.30
Log pseudolikelihood = -46.816374	Prob > chi2	=	0.0000

Wantstartbusinessorno	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.0315518	.1421013	0.22	0.824	-.2469617	.3100653
Gender	-.1860482	.288931	-0.64	0.520	-.7523426	.3802463
Studenteducationlevel	.1017619	.3724756	0.27	0.785	-.6282768	.8318007
Faculty_business	.5381729	.3128764	1.72	0.085	-.0750536	1.151399
Familyincome	.1796916	.0877221	2.05	0.041	.0077594	.3516238
MotivPartIncubProg	1.518845	.5458621	2.78	0.005	.4489748	2.588715
ParticipIncubProg	-1.988219	.6268199	-3.17	0.002	-3.216764	-.7596746
ComplateIncubProg	1.920773	.3002139	6.40	0.000	1.332364	2.509181
EffectivnessBI	.3006696	.1554085	1.93	0.053	-.0039256	.6052647

Appendix IX *Result of Logistic estimates of effectiveness and challenges of business incubators*

Ordered logistic regression — Number of obs = 239
LR chi2(8) = 193.50
Prob > chi2 = 0.0000
Log likelihood = -253.28815 — Pseudo R2 = 0.2764

EffectivnessBI	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Infrastructurefacilities	.2632572	.0799771	3.29	0.001	.106505	.4200095
Marketingservices	.1689263	.0998231	1.69	0.091	-.0267234	.3645761
Trainingprogram	.20501	.0944858	2.17	0.030	.0198212	.3901988
Networkingservices	.0848441	.1408626	0.60	0.547	-.1912415	.3609297
Consultancyservices	.1274436	.0894602	1.42	0.154	-.0478951	.3027824
BIchallenge_funding	.8140897	.3677445	2.21	0.027	.0933237	1.534856
BIchallenge_infrastructu	.346455	.4149337	0.83	0.404	-.4668001	1.15971
BIchallenge_skills	.6229947	.4999655	1.25	0.213	-.3569197	1.602909

Appendix X *Result of Robustness estimate of effectiveness and challenges of BI*

Ordered probit regression — Number of obs = 239
Wald chi2(8) = 155.80
Prob > chi2 = 0.0000
Log pseudolikelihood = -253.0536 — Pseudo R2 = 0.2771

EffectivnessBI	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Infrastructurefacilities	.1525295	.0493812	3.09	0.002	.0557441	.2493149
Marketingservices	.1090828	.0639125	1.71	0.088	-.0161834	.234349
Trainingprogram	.1272721	.0577667	2.20	0.028	.0140514	.2404928
Networkingservices	.0268612	.0799562	0.34	0.737	-.1298501	.1835724
Consultancyservices	.070107	.0481905	1.45	0.146	-.0243445	.1645586
BIchallenge_funding	.4686907	.1961827	2.39	0.017	.0841796	.8532017
BIchallenge_infrastructu	.2345196	.2388674	0.98	0.326	-.2336519	.702691
BIchallenge_skills	.3683476	.2674227	1.38	0.168	-.1557912	.8924864
/cut1	4.325763	.5569977			3.234068	5.417459
/cut2	7.448436	.6854979			6.104885	8.791987
/cut3	8.511549	.7135665			7.112985	9.910114
/cut4	9.713568	.7735327			8.197472	11.22966

Appendix XI Summary of the tested hypothesis of awareness, impact, effectiveness, and challenges of business incubators in Tajikistan

Hypothesis	Results	Decision
H_1, It is likely that students majoring in entrepreneurship in universities have a higher level of awareness about incubation than those not majoring.	Significant (Positive)	Proved
H_2, Incubation programs will have a significant influence on the entrepreneurial intention of students.	Significant (Positive)	Proved
H_3, There is a significant relation between infrastructure facilities support, marketing services, training programs, and the effectiveness of business incubators on the growth of startups.	Significant (Positive)	Not proved
H_4, Financial challenges that are faced by BIs will have negative influence on growth of startups.	Significant (Positive)	Not proved

Note. The significance level is 0.01%. Decisions were made according to the results, which are demonstrated in Tables 5.4, 5.5 and 5.6. Compiled by the author.

Appendix XII Recommendations

Based on the results of this study, the following section proposes the most viable and essential recommendations for policy implications. According to the literature, along with entrepreneurs, students also are the primary clients of business incubators, and business incubators are development vehicles that play a viable and substantial role

in enhancing local economies. Therefore, for this mechanism to work effectively, the researcher recommends that business incubators, government, universities, and students collaborate to enhance and develop the business incubator system. Recommendations on how to achieve this goal are outlined below.

7.4.1 Business Incubators

In terms of improving the awareness of business incubators, it is recommended that business incubators:

- request the support of the government and donor organizations to provide more training and seminars regarding incubation programs to students to raise awareness of their services.
- increase advertising through the internet and innovative low-cost means of advertising such as articles, newspapers, magazines, the social media, television, and radio.
- create an electronic library on their websites of magazine articles, books, videos etc. that document the achievements of business incubators and startups in three languages.
- involve more female students in incubation programs.

In addition to the above, this study recommends that business incubators implement the following measures to improve the impact of incubation programs on entrepreneurial intention:

- improve the entry and exit policies for students' participation by establishing a defined incubation time and, as a result, a specified graduation period at the business incubation centers.
- State Institution "Business Incubators" should create their own offices, i.e., branches in the country's universities to provide the best conditions for encouraging students.
- Invite specialists in the field of business incubators to learn best practices.
- Send staff to study the experience of foreign countries in the formation and development of small and medium businesses. Organize TOT with the support of donor organizations.

Third, concerning improving the effectiveness of business incubators, the following recommendations are offered:

- With the cooperation of international organizations, provide quality services to participants for the implementation of their business ideas.
- In line with the finding of this study that infrastructure facilities support has a positive impact on effectiveness of business incubators for startup growth, establish shared facilities with essential equipment and free high-speed internet for students depending on the trust area of the incubation center and provide these facilities after business hours, on weekends, and public holidays.
- Request the support of government, universities, and donor's organization, to provide more seminars/training programs to support students.

- To improve marketing services for tenants, it is recommended to engage a qualified and experienced marketing specialist, who should receive an appropriate remuneration. It is essential to incubators to provide their services to tenants through participation in local and international market opportunities, exhibition/business fairs, and online promotions. Training tenants through innovative low-cost marketing techniques can be very effective.
- Organize startups events to educate youth about opportunities in the technology sector to give them opportunities to lay the groundwork for linking the startup ecosystem to international networks. This recommendation is offered in response to the finding that there is no significant relationship between networking services and business effectiveness for growth startups in Tajikistan. Therefore, donor organizations, private sector companies, educational institutions, successful entrepreneurs, and policymakers should be more involved in these network formation activities.
- Provide consultancy services to participants by qualified, internationally trained professionals, and that incubator expert, industry professionals, managers, and investors who wish to spend time with start-ups are actively recruited and remunerated accordingly.

7.4.2 Government

In addition to the recommendations to business incubators this study suggests that the government take the following steps to increase the effectiveness of business incubators:

- Assist in the creation of business incubation centers in all universities.

- Expand funding for BIT activities across the country.
- Expand the infrastructure facilities in support of business incubators.
- Support the increase in direct financial institution funds and donor grants to incubation programs.
- Assist businesses in gaining access to venture capital, business angels, and development partners, as well as the creation of an Internet platform for attracting financing for business projects (e.g., crowdfunding, fundraising).

7.4.3 Universities

Furthermore, the study recommends that the universities have to take the following steps to increase the effectiveness of business incubators:

- Improve and strengthen entrepreneurship education in universities
- Take the initiative to establish their own business incubators and techno parks for students, as only learning entrepreneurship education in university is not enough to comprehend the entire entrepreneurship ecosystem.
- Include the topic of the business incubator in the curricula of universities.
- Focus more research on the topic of business incubators, as BIs are a new phenomenon in Tajikistan and practically no research exists on BIs in this context.

7.4.4 Students

Finally, students can also be involved in increasing the effectiveness of business incubators in the following ways:

- Students should treat the business incubation programs seriously and participate in the incubation programs actively. A great deal of personal growth can be attained through incubation programs.
- Students with high family incomes should take advantage of the opportunities and services of a business incubator because student entrepreneurial groups can benefit from the wealth, experience, and innovative entrepreneurial behavior of these students' families.