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EXAMINATION OF STARTUPS INVESTMENTS BY RECEIVING THE MOST INVESTMENT SECTORS: THE CASE OF TURKISH STARTUP ECOSYSTEM

STARTUP YATIRIMLARININ EN ÇOK YATIRIM ALAN SEKTÖRLER ÖZELİNDE İNCELENMESİ: TÜRKİYE STARTUP EKOSİSTEMİ ÖRNEĞİ

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ABSTRACT

Startups, which are structures where the concepts of research and development, innovation and technology come together, can be described as innovative initiatives with the ability to grow rapidly and scale. The increase in the number of startups, whose importance and effectiveness are increasing day by day in the economies of developed and developing countries, is very important for the country's economies. For this reason, the support provided to startups by the public, private sector, universities, and non-governmental organizations is increasing day by day in almost every country, in parallel with the importance of startups. In this study, the total investments and investment numbers made in startups in Türkiye over the years were examined specifically for startup sectors, using the document analysis method, which is one of the qualitative research methods, and data obtained from secondary sources. When the data obtained from the study was examined, it was concluded that the sectors where the most startups were founded, and the most investments were made were the sectors with more successful startups and unicorns.

ÖZET

Araştırma-geliştirme, inovasyon ve teknoloji kavramlarının bir araya geldiği yapılar olan startuplar, hızlı büyüme ve ölçeklenme yeteneği olan yenilikçi girişimler olarak ifade edilebilir. Gelişmiş ve gelişen ülke ekonomilerinde önemi ve etkinliği her geçen gün artan startupların sayısının artması ise ülke ekonomileri için oldukça önemlidir. Bu nedenle kamu, özel sektör, üniversiteler ve sivil toplum örgütleri tarafından startuplara sunulan destekler startupların önemine paralel olarak hemen hemen her ülkede günden güne artmaktadır. Yapılan bu çalışmada nitel araştırma yöntemlerinden olan doküman analizi yöntemi kullanılarak ikincil

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kaynaklardan elde edilen verilerle Türkiye'de yıllar içerisinde startuplara yapılan toplam yatırımlar ve yatırım adetleri sektörler özelinde incelenmiştir. Çalışmadan elde edilen veriler incelendiğinde en çok startup kurulan ve en çok yatırım alan sektörlerin çok sayıda başarılı startup ve unicorn (değeri bir milyar doları aşan startuplar) çıkartan sektörler olduğu sonucuna ulaşılmıştır.

1. INTRODUCTION

Nowadays, the number of startups that offer quick solutions to the demands and needs of their customers in many sectors and make a difference in the sector is increasing day by day. In parallel with the amount of investment made in startups, especially in developed countries, we see that many startups have become innovative companies operating on a global scale. The most fundamental feature that distinguishes startups from traditional enterprises is their rapid growth capacity, innovative business models based on technology and innovation, and flexible structures.

One of the most critical factors for startups to be successful and scale their activities is their ability to access the funding they need. The limited assets and credibility of seed and early stage startups, in particular, make it difficult for them to benefit from debt-based financing instruments (Festel, Wuermseher, & Cattaneo, 2013). For this reason, startups turn to equity-based financing methods and obtain the funds they need from investors who are aware of the risks specific to startups, such as angel investors, venture capitalists and crowdfunding.

Investors who fund startups have different criteria. Generally, startups in the seed and early stages receive investment through angel investors or crowdfunding, while startups in the maturity and growth phase receive investment through venture capital companies, corporate venture capital companies or venture capital investment funds (Klein et al, 2019).

In investments in startups, an important factor for investors is the investment stage of the startups as well as the sector they are in. For example, while some angel investors or corporate venture capital companies invest in startups in their own verticals or in sectors close to their areas of expertise, some investors may prefer sectors that are fast-growing, popular, or in which they believe they will make a difference in the future (Altundal, & Başar, 2020).

The sectors where startups are most successful are the dominant sectors where investors tend to invest the most, in other words, they are the dominant sectors with access to finance (Kim, Kim, & Jeon, 2018). For this reason, in this study, the total amount of investments made in startups over the years in the Turkish entrepreneurship ecosystem, the number of investments and the sectors in which investments were made were investigated.

In addition, in the study, the sectors where the most investments were made in startups were examined in terms of both investment amount and number of investments. Thus, both the investment trend and the sectors receiving the most investment for startups were observed together and the relationship between them was investigated. While previous studies in this field examined startups in separate sectors, in this study the sectors that received the most investment were examined together and presented as a whole. From this perspective, the study will contribute to filling this gap in the literature and provide important implications for investors, policy makers and startup founders.

2. LITERATURE

Aminova and Marchi (2021) stated that approximately 90% of startups established in developed and developing economies failed and had to terminate their activities. According to Kalyanasundaram, (2018), the main reasons why startups fail are the competitiveness of the sector in which they operate, problems in accessing finance, incompatibility of the founders and the managing team, lack of product-market fit, inexperience of the entrepreneur, prolongation of the emergence of the minimum viable product, and low income generation capacity,

and limited sales abilities.

Altundal and Başar (2020) stated that it is of great importance for startups to access the financing required for them to continue their activities effectively, at the right time and in the right amount. Particularly in the investments made by angel investors and venture capitalists in seed and early stage startups, the contributions of investors are as important as the financing in their success. This concept is referred to as smart money. In other words, in addition to the financing provided to startups, it can be expressed as providing networking, consultancy, support related to the investor's field of expertise and other supports that the startup needs.

Startups are inherently risky businesses. For this reason, investors investing in startups accept this risk and consider it sufficient for one or two out of ten startups to be successful in their portfolio. Because a successful startup can offer significant returns such as 10x, 20x and 30x to its investor. Sahlman (2010) stated in his study that approximately 85% of the returns of venture capitalists come from 10% of their investments.

Venture capital financing of startups has become a central source of finance for the commercialization of radical innovations in the US economy, where many successful startups have emerged in recent years (Samila, & Sorenson, 2011). Especially technological developments in some sectors and the investments made by investors in that direction contribute to startups offering many new products and services (Nanda, & Rhodes-Kropf, 2013). According to Kassicieh (2010), clustering startups and investors in one center contributes to the success of more startups. Especially sectoral clusters make this situation more effective. For example, acceleration centers or incubation centers established specifically for biotechnology, financial technologies or artificial intelligence enable that sector to deepen further and provide more effective services to startups.

David, Gopalan, and Ramachandran (2021) state that in India, which is the country with the third largest startup economy in the world, with more than 26,000 startups and 26 unicorn startups (startups valued at over one billion dollars), the startup ecosystem has a large degree of financial depth. They stated that they are clustered in big cities and mostly in information technology-supported sectors such as e-commerce, transportation and finance. This situation contributes to the success of more startups by supporting the ecosystem that specializes and clusters in a certain vertical with innovation and technology (Lee, 2017), and as a result, more investments in relevant sectors.

There have been studies in the literature addressing the importance of startups for country economies (Kane, 2010; Thomas et al., 2019; Nigbor-Drożdż, 2021; Malhotra, 2022). In addition, in some previous studies, startups were examined specifically in different sectors. Soegoto and Faridh (2020) stated that the business models of startups in the agriculture and food sector and the technologies they use will make positive contributions to the development of this sector and the implementation of self-sufficient agricultural policies. Norouzi et al., (2023) explained the importance of startups operating in the agricultural sector for the Iranian agricultural sector and economy and conducted a SWOT analysis to reveal the current situation of startups in the sector.

Leong et al., (2017) stated in their study that startups operating in the financial technology sector have significantly changed their traditional ways of doing business and have become important players in the sector by offering alternative services to corporate companies.

Jacob (2017) examined the contribution of the support provided to startups by the government in India to the development of the ecosystem and the establishment of successful startups. Stating that there is a need for startups to be established on tourism and travel in India, he stated that there are important opportunities in this field, and that by increasing the number of successful startups, both employment and sectoral development in the tourism sector can be achieved. Fabic (2022) stated that startups are an important driving force in the modern economy and compared the startups in the Croatian ecosystem with other similar countries, stating that startups in the country are at a low level compared to other countries in the same development group because the startup policies in the country cannot adequately adapt to the special needs of startups.

Another issue that is critical for both the entrepreneur and the investor in the studies in the literature is the issue of valuation, that is, what the value of the startup is. Startups involve high uncertainty and risk, especially

in the seed and early stages, and the lack of historical financial data makes valuation very difficult (Hochberg, Ljungqvist & Lu, 2010). For this reason, some information such as the investment stage of the startups, the sector it is in, its market potential, and whether it has past investments can be very effective on investors' intentions to invest (Bai and Zhao, 2021).

3. SECTORAL DISTRIBUTION OF STARTUP INVESTMENTS IN TÜRKİYE

Investments in startups in Türkiye in the 2010s fell behind other emerging and developing countries, reaching between 20 and 100 million dollars annually. Investments in startups in Türkiye exceeded 100 million dollars for the first time in 2017. After 2020, investments in startups increased significantly and exceeded billion dollars. In figure1 below, the investments made in startups in Türkiye over the years are given in detail.

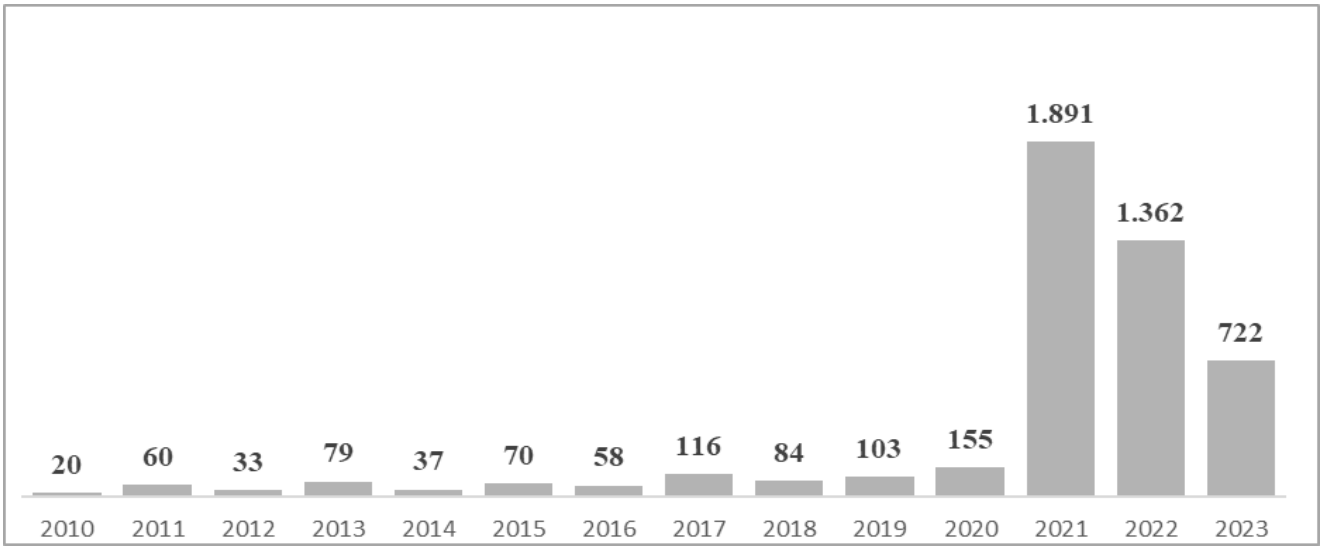

Figure 1. Annual Startup Investments Amount in Türkiye Between 2010-2023 (Million USD)
Source: Startupswatch, 2024.

When figure 1 above is examined, it is seen that the investments made until 2017 remained below 100 million USD annually. Between 2017 and 2020, startups began to attract more attention from investors and received investments of over 100 million dollars, excluding 2018. As of 2021, there is a significant increase in investments in startups. Startups that offered much more flexible and faster solutions during the Covid-19 pandemic period had a significant impact on this increase. For example, Getir, which operates in the fast delivery sector, received an investment of $983 million alone in 2021, $768 million in 2022, and $500 million in 2023. When we subtract the investment received by Getir in Türkiye from the total investment, 908 million dollars were invested in 2021, 594 million dollars in 2022 and 222 million dollars in 2023. When we look at the investments in the last three years, it can be seen that investments in startups are in a downward trend. There was a particularly sharp decline in 2023. Nevertheless, 2023 was the year when investments in startups dropped to their lowest level in the last five years, not only in Türkiye but also globally (Startupswatch, 2024). However, Türkiye is a country with promising startups in many sectors, and it is predicted that investments in startups will increase in the coming years (Ministry of Industry and Technology of the Republic of Türkiye, 2024). In addition, although there have been significant decreases in investment amounts in recent years, there is no significant decrease in the number of investments. In figure 2 below, the investments made in startups in Türkiye over the years are discussed in quantity.

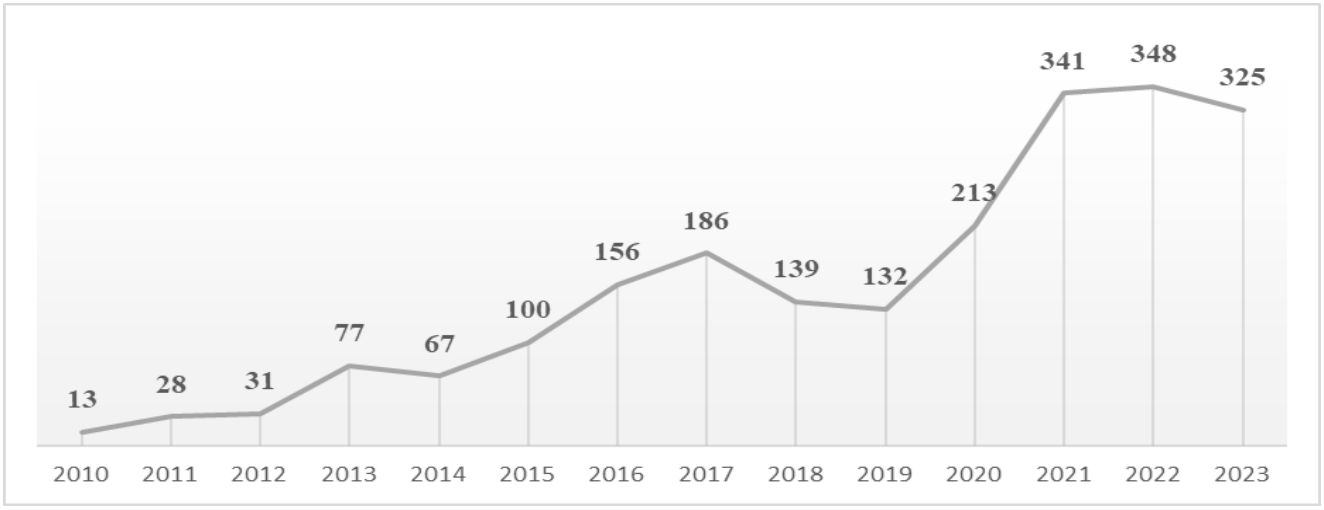

Figure 2. Annual Startups Investments Numbers in Türkiye between 2010 and 2023

Source: Startupswatch, 2024.

When figure 2 above is examined, only 13 investments were made in startups in 2010. While the number of investments in startups has increased over the years, it has exceeded 300 annually in the last three years. Looking at the graph, there is a significant increase in the number of investments made in startups, especially between 2019 and 2021.

Another indicator that is as important as the annual investment amounts and number of investments made in startups is the sectors in which the most investments have been made over the years. In addition, the increase or decrease trend of sectoral investments is also an important indicator.

The sectors that received the most investments on a global scale in the last decade and have unicorns are; media and entertainment, financial technology, digital gaming, artificial intelligence, software as a service (SaaS), consumer and retail technologies, healthcare and life sciences, mobility and rapid delivery, advanced manufacturing and robotics, blockchain technologies, biotechnology, new media tools, agricultural technologies, educational technologies and advertising technologies (CB Insights, 2024).

When we look at the sectors where startups are most supported and invested in in Türkiye, it is seen that they have not changed significantly over the years, although they are parallel to the investments made on a global scale. Table 1 below lists the top ten sectors that received the most investment in Türkiye in the last five years.

Table 1. The Top Ten Sectors Invested in Startups in Türkiye between 2018-2023 (By Investment Amount)

Rank	Sectors	2019	2020	2021	2022	2023	Total
1	Fast Delivery	38,1	0	984,4	768,2	500,3	2.291
2	Gaming	8,4	14,7	520	108,3	31,1	682,5
3	Software as a Service (SaaS)	5,8	54,2	9,7	148,4	40,9	259
4	Artificial Intelligence	5,4	43,3	19,1	151,9	36,1	255,8
5	Financial Technologies	4,3	25,9	68,9	91,2	27,9	218,2
6	E-Commerce	1,4	8	29,3	33,9	18,2	90,8
7	Retail Technologies	2,5	8	5,9	17	30,1	63,5
8	Restaurant Technologies	2,7	4	7,2	11,1	20,1	45,1
9	Energy	0,9	2,5	4,6	11,6	18,7	38,3
10	Image Process	1	2,7	7,8	4,5	19,5	35,5

Source: Startupswatch, 2024.

When Table 1 is examined, it is seen that the top five sectors in which the most investments have been made in the last five years are in the top five every year (except for the fast delivery sector in 2020). This shows us that the trend of the sectors investing in startups has not changed much in the last five years. When the other five sectors are examined, it is seen that the e-commerce, retail technologies and restaurant technologies sectors have received increasing investments in the last five years, despite the fluctuations in some years, and the investments in energy and image processing technologies have increased regularly in the last five years.

It is also very important to look at the sectors where the most investments are made in startups in Türkiye, in terms of the number of investments. Because, when investing in a startup that is in a fast-growing trend or a unicorn in some sectors, it contributes to a significant increase in investments in that sector. Therefore, in order to more accurately evaluate whether a sector is popular with investors or not, the number of investments made in startups in Türkiye in the last five years is given in Table 2 below.

Table 2. The Top Ten Sectors Invested in Startups in Türkiye between 2018-2023 (By Number of Investments)

Rank	Sectors	2019	2020	2021	2022	2023	Total
1	Financial Technologies	19	25	40	37	33	**154**
2	Artificial intelligence	15	19	39	31	47	**151**
3	Gaming	6	18	54	27	41	**146**
4	Software as a Service (SaaS)	17	36	26	35	34	**148**
5	Deep Technologies	12	17	33	21	18	**101**
6	Health and Life Sciences	7	16	23	27	17	**90**
7	Climate Technologies	8	8	21	22	25	**84**
8	E-Commerce	6	11	17	18	21	**73**
9	Energy	5	9	11	13	24	**62**
10	Internet of Things	4	9	8	14	17	**52**

Source: Startupswatch, 2024.

In table 2 above, it can be seen that the fast delivery sector, which ranks first in terms of investment amount, is not in the top ten. This is due to the fact that Getir has received all investments in the fast delivery sector on its own. Apart from this, it is seen that the investment numbers of almost every sector are in an increasing trend, with the fluctuations that have occurred over the years in the top ten sectors that receive the most investments according to the number of investments.

Another indicator that should be examined is whether there is a relationship between the sectors in which startups are invested in Türkiye and the number of startups established. For this reason, table 3 below lists the top five sectors with the most startups in Türkiye.

Table 3. The Most Startups Founded Sectors in Türkiye Between 2018-2022

Rank	2018	2019	2020	2021	2022
1	Fintech	Gaming	Gaming	Gaming	Gaming
2	SaaS	Artificial Int.	Artificial Int.	Fintech	Artificial Int.
3	Artificial Int.	SaaS	Health tech	Artificial Int.	Fintech
4	Deep tech	Fintech	Fintech	Health tech	Sustainability
5	Health tech	Health tech	SaaS	SaaS	Energy

Source: Startupswatch, 2023.

When Table 3 is examined, it is seen that the sectors with the most investments in startups in Türkiye and the sectors with the most startups are similar. In this table, while the sectors in which the most investments are made and the sectors in which the most startups are founded are the same, as an exception, it is seen that the startups operating in the sustainability sector in 2022 are in the top five in the most founded list. While the importance of sustainability increases due to the climate crisis and changing consumer behavior, the sustainability sector will take its place among the top ten sectors with the most investments in the next three years.

4. AIM AND METHOD OF THE STUDY

4.1. Aim of the Study

The aim of this study is to examine the investments made in startups on a sector-specific basis, and to reveal the relationship between the investments made in each sector and the number of startups established in the relevant sector, and how the sectoral preferences of investors when investing affect the investments made in the same sector in the following years. Thus, it is aimed to contribute to the relevant parties and the literature by interpreting the data regarding which sectors have received less or more investment in line with the developments over the years.

4.2. Method of the Study

Qualitative research, which is frequently used in social sciences, is a research method in which data collection methods such as observation, interview and document analysis are used, and perceptions and events are monitored in a natural environment. In this study, the document analysis method, one of the qualitative research methods, was used. Document analysis method is a scientific research method defined as the collection, review, questioning and analysis of previously published written documents of research data (Sak et al., 2021).

As with other methods used in qualitative research, the document analysis method requires examining and interpreting data to derive meaning, create an understanding of the relevant subject, and develop empirical knowledge (Corbin, & Strauss, 2008). For this reason, the data obtained from the study were discussed and interpreted under the heading of discussion and conclusion.

5. DISCUSSION AND CONCLUSION

In recent years, startups have managed to do creative work with innovative business ideas in many sectors. One of the most important criteria for startups to continue their success is their ability to be competitive in their sectors. One of the most important factors for them to be competitive is their ability to access the right investors and financing at the right time (Kim, Kim, & Jeon, 2018). Although investments in startups have increased over the years, it shows that the interest of investors is shifting to different sectors from year to year. When the data obtained in this study is examined, it is seen that investment amounts and investment numbers have become more concentrated in different sectors over the years. While sectors such as financial technologies, e-commerce, new media tools and SaaS were very popular in the 2010s, it is seen that sectors such as renewable energy, artificial intelligence and health technologies have come to the fore in recent years. However, the special conditions that emerged during the Covid-19 pandemic period increased the interest in startups operating in the fast delivery sector at that time. But with the decrease in the impact of the pandemic and normalization, it seems that the interest in the relevant sector has decreased.

Although the intensity of investments made in startups over the years varies depending on the sector, the sectors that investors prefer to invest in the most in the world and in Türkiye are also the sectors that are the most unicorns. For example, 7 unicorns in Türkiye (Getir (fast delivery), Peak Games and Dream Games (gaming), Insider (SaaS) Hepsiburada and Trendyol (e-commerce), Papara (financial technologies)) are given in Table 1. It is seen that it is among the top six sectors in which the most investments are made. This shows that there is a relationship between investments in startups and successful startups and that access to finance is an important factor for startups to be successful, and some previous studies (Khelil, 2016; Kim, Kim, & Jeon, 2018) point to a similar result.

In order to clearly explain the relationship between investments in startups and their success, the concept of successful startup must be clearly defined. Successful startups can be defined as startups that commercialize

their business model, product or service supported by technology and innovation, and enter a rapid growth trend within a period of 5 years. However, the most important concept used to define successful startups in an iconic way is the concept of unicorn. The concept of unicorn is used in the entrepreneurship ecosystem to describe startups with a value exceeding one billion dollars. The goal of every startup established in Türkiye, as in other countries, is to become a unicorn. According to CBINSIGHTS (2024), there are more than 1200 unicorn startups in the world. There are 7 unicorns in Türkiye as of March 2024 (Ministry of Industry and Technology of the Republic of Türkiye, Access Date: 01.04.2024).

In the success of startups, sectoral clustering, being in a developing sector and financing strategy are as important as access to finance. Especially when the talents of the founders, the management team, and the investors, that is, the social and human capital and financial capital of the startup, come together correctly, it provides a significant advantage for the success of startups (Keogh, & Johnson, 2021).

However, factors such as access to finance, R&D and innovation capacity, the sector they are in, sectoral clustering, sectoral investments, access to the investor ecosystem, competitiveness, correct business plan and business model play an important role in the success or failure of startups (Teece, 2010; Cantamessa et al., 2018; Konga, & Ramaiah, 2021). In order to understand startups correctly, it is necessary to look at unsuccessful startups as well as successful startups. When we look at failed startups, we see that the failure rates of startups vary from sector to sector. It is seen that the failure rate is higher than other sectors, especially in competitive sectors with very large players such as new media tools, software entertainment and e-commerce (Cantamessa et al., 2018).

When looked at in the light of the literature and the information given above, it can be seen that the sector in which they operate is important, along with other factors, for the success of startups. For this reason, it is an important factor to know whether which sectors investors prefer when investing in startups has an impact on newly established startups. When we look at the investments made in startups in Türkiye and the sectors where the most startups were established over the year, we see that they are similar sectors.

However, it is of great importance to re-compare the number of startups established and the sectors in which the most investments are made, by using data obtained over many years in future studies. Also, the total investments made in countries other than Türkiye and the sectors in which the investments are clustered from year to year should be investigated, and by comparing them over the years, investigating whether the trend changes globally or specifically for that country will make significant contributions to the literature. In addition, investigating the investments made in startups at which investment stage and in which sector will also make a significant contribution to the literature. Although it is thought that the results of this study will contribute to the founders of startups, investors, theorists, and the literature, comparing the results by supporting them with other studies to be conducted in the future will contribute to the emergence of important results.

Conflict Statement

There is no conflict of interest between the authors in the study.

Statement of Support

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