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A Critical View on the Idea of Rising of Conservatism in University Graduates in Turkey

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Abstract

Even though it is getting weaker, there is still a common idea in Turkish politics that well-educated people support the left-wing political parties and contrary, under-educated people support the right-wing/ conservative parties. Although this idea may partially -or at the end- be true the situation is more complicated than this.

In the Atlas of Turkish Values, for example, the comparison of 1990 and 2011 data indicates that conservatism has risen dramatically among university graduates. Therefore, it is necessary to know the background of this process together with the populist and ideological policies.

Hence, we should examine some paradoxes of liberal democracy. So, the main research questions here are:

1. How are higher education and politics intertwined between 1990 and today?

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2. What are the social and political effects of changing and specifically; on the voting behavior of the university graduates among these two main political lines: National Vision tradition and Republican political parties?

Keywords: Universities in Turkey, conservatism and education, democracy and education, Gramsci, World Values Survey Turkey, politics and universities

Öz

Giderek zayıflasa da Türk siyasetinde halen eğitim düzeyi yüksek kişilerin sol görüşten siyasal partileri desteklediği ve tersine, eğitim düzeyi düşük kişilerin de sağ görüşten/muhafazakar siyasal partileri desteklediği görüşü hakimdir. Her ne kadar bu fikir kısmen –veya sonundadoğru olsa da durum bundan daha karmaşıktır.

Türkiye Değerler Atlası'nda, örneğin, 2009 ve 2011 verilerinin karşılaştırması, muhafazakarlığın üniversite mezunları arasında çarpıcı bir şekilde arttığını göstermektedir. Bu nedenle bu sürecin arka planını, popülist ve ideolojik politikalarla birlikte anlamak gerekecektir.

Dolayısıyla, liberal demokrasinin bazı paradokslarını incelemek gerekecektir. Bu yüzden buradaki temel araştırma soruları:

1.1990'dan bugüne, yüksek öğretim ve siyaset nasıl iç içe geçiyor?

2.Değişimin, özellikle üniversite mezunlarının oy kullanma davranışlarının iki ana siyasi hat - Milli Görüş geleneği ve Cumhuriyetçi siyasal partiler- arasındaki değişimi olmak üzere, toplumsal ve siyasal etkileri nelerdir?

Anahtar Kelimeler: Türkiye'de üniversiteler, muhafazakarlık ve eğitim, demokrasi ve eğitim, Gramsci, Dünya Değerler Araştırması Türkiye, siyaset ve üniversiteler

1. Introduction

Fundamental changes economic, demographic and technological changes have taken place in the world with the 'globalization' process since the 1990s. During this process, the number of countries governed by democracy has increased, higher education has become widespread and university education has become available for the masses rather than being exclusive to the elite few. According to the liberal/theoretical view, a rise in the quality of education could be expected during this process due to the increasing number of universities and competition among them. However, Tekeli underlines that with globalization, knowledge has become an ordinary commodity (Kaynar-Parlak, 2004: 6-9).

However, with the commodification of knowledge, two major problems arise in universities.

The first is that the gap between good and other universities will widen as education is provided with a 'market' mentality, based on 'demand', or in other words, with a 'customer' focus.

The second problem is the ideological instrumentalization of education, particularly in countries where democracy is not strong.

There may also be several specific cases among countries regarding globalization and its education related consequences (Laçiner, 2001: 23-28).

As a "Secular-Muslim" country, the -education related– consequences of Turkey's shift towards globalization through the neo-liberal economic policies in 1980 is unique in certain aspects.

The 1980 military "coup era" was the guarantor of the construction of neo-liberal economic policies, during which the Motherland Party (ANAP), (which came to power with the 1983 general elections after stepping back into the political stage) became the executive of the program in that era. In this period, extensive use was also made of the liberalist masquerade of political liberalism. ANAP claimed that it was a "liberal" party that brought together political traditions such as the center-right, the center-left, the religious right-wing, and the nationalist right.

The abolishment of Articles 141-142 on the "fight against communism" and Article 163 on the "fight on reactionism" that were present in the criminal code of the time in 1991 under the claim of "freedom of thought" can be given as examples supporting this claim.

It should not be forgotten that with the collapse of the Soviet Union, communism "became no longer a threat" in the conjuncture of the period, and the strengthening of radical Islam due to the "Green Belt" project that the United States had run since the 1970s had begun to be seen.

Especially in such a conjuncture, the steps that paved the way for empowerment of Islamic conservatism in Turkey under the guise of "freedom of thought" points to a paradox of liberal democracy worth discussing: "Should democracy have a tolerance to thoughts that threaten its own existence, or where are the boundaries of such a tolerance?"

Indeed, Turkey in the 90s witnessed the rising of Islamic conservatism, which was seen by its opponents as a threat to the democratic regime. More specifically, the rising of the National Vision (Millî Görüş) tradition, -and- as the representative of this tradition the Welfare Party (RP), came to power after emerging as the primary political party in the 1995 elections, leading to the post-modern coup of February 28 as a response to these developments.

The 1995 elections can also be regarded as the beginning of the change and transformation of the "center", which became fully apparent in Turkish politics after 2002. However, although the RP received the highest number of votes in the elections, it could not obtain the majority to form the government on its own. Thus, ANAP formed a coalition with True Path Party (DYP), which had been established as the continuation of the Justice Party (AP) before the coup. After this coalition broke, DYP formed the 54th Government with RP in the prime minister of Necmettin Erbakan (Table 1).

Table 1: Governments formed after 1995 General Elections

Governments	Prime Ministers	Parties	Period
ANAYOL (53rd G.)	2nd Yılmaz Government	ANAP-DYP	6 March- 28 June 1996
REFAHYOL (54th G.)	Erbakan Government	RP-DYP	28 June 1996- 30 June 1997
ANASOL-D (55th G.)	3rd Yılmaz Government	ANAP-DSP-DTP	30 June 1997- 11 January 1999
DSP Azınlık (56th G.)	4th Ecevit Government	DSP	11 January 1999- 28 May 1999

When we look at the governments formed after the 1995 General Elections, we see that the dominant character of power in this period is the right-wing, except for the 55th Government of the Democratic Left Party (DSP) and the 56th Minority Government established by DSP. Until now, predominantly right-wing voters have characterized Turkish democracy. However, what makes this period different from previous periods is that "Islamic/conservative" right-wing politics starts to take the place of "traditionalist liberal" center-right, as defined by Emre Kongar. This time, we see "Islamic/conservative" RP becoming the first party in the 1995 elections and being part of the 54th government (until February 28, military intervention) as a clear and significant sign of the social and political change in Turkey.

The rising political tension, starting with Prime Minister Erbakan's first overseas visits in Muslim states of Egypt, Libya and Nigeria, followed by statements and actions with Islamic content made by leading figures and municipal mayors of the party, as well as increasing concerns for secularism, led the country to the February 28 military intervention.

In the long National Security Council (NSC) meeting held on February 28, 1997, the soldiers stressed that secularism was the guarantor of democracy and the rule of law in Turkey, and reported the decisions taken by the Council to the government.

With the decisions of the NSC meeting held on February 28, various educational requirements were put into place. Schools affiliated with the

religious sects were to be supervised by and transferred to the Ministry of National Education (MoNE). The education system was changed to eight years of uninterrupted education. Further changes included the supervision of Quran courses, the application of the Law of Unification of Education, emphasis on the closure of religious sects, the necessity of keeping the media -which defended people discharged from the army due to reactionism and portrayed the army as an enemy of religion- under control, compliance with the dress code, and actions against Atatürk, and reports of violations of these requirements to the government. The soldiers prepared an "Action Plan against Reactionary Forces" during this period, and a "Western Working Group" was set up under the leadership of the Deputy Chief of General Staff Army Commander Çevik Bir to supervise whether the decisions and sanctions were implemented.

These political developments in 1990s should have led the Justice and Development Party (AKP) to be cautious while taking its position against the status quo during its establishment phase later. Although the party was originated from the "Milli Görüş" (National Vision) tradition, AKP was established by an "innovative" staff that defined itself as "conservative democrat". AKP leader Recep Tayyip Erdoğan implied to his voters that by demanding to continue with the National Vision - he was not breaking from the tradition-. However, he made contradicting statements that the party did separate from the National Vision tradition, so as –to sway votes from right- wing voters supporting the Secular Republic. He thus succeeded in consolidating the right-wing voters. He also managed to gain support of the "liberal left" using rhetoric on the European Union (EU) and democracy, as well as with certain regulations included in the September 12, 2010 referendum. (Gürsel, 2010).

2. 2012 Atlas of Turkish Values and Conservatism in Turkey

The findings of Atlas of Turkish Values conservatism scale study demonstrate the connection of political conservationism starting in the 90s and leaving its mark on the 2000s with social conservatism.

Average conservatism level of Turkey according to Atlas of Turkish Values is given in Table 2 at intervals of 10 years.

Table 2: Level of conservatism in turkey (1990-2011)

Years	Conservatism Level
1990	60.34
2001	64.80
2011	63.00

If the central point of the scale is taken as 50, these figures indicate that Turkish people are closer to conservative values. Between 1990 and 2011, the change in society in favor of conservatism is below 3 points out of 100. Considering the decrease of 1.80 points between 2001 and 2011, it is seen that the findings are consistent with the political process and the structure of Turkish society dominated by conservatism can be observed.

The striking result triggering this study is the comparison of conservatism scales of university graduates from 1990 to 2011: the conservatism level of university graduates which was 38.5 in 1990 reached 54.8 in 2011 with a significant increase of more than 16 points.

Table 3: Level of Conservatism in University Graduates (1990-2011)

Years	Conservatism Level in University Graduates
1990	38.5
2011	54.8

The fact that the increase in the level of conservatism among university graduates is significantly higher than the Turkey average is a striking result (Tables 2 and 3).

Considering the dramatic increase in the number of universities, the result envisages questioning the reality of the perception among the Turkish public that "the well-educated voters vote for the left parties and the lower-educated ones vote for the right parties".

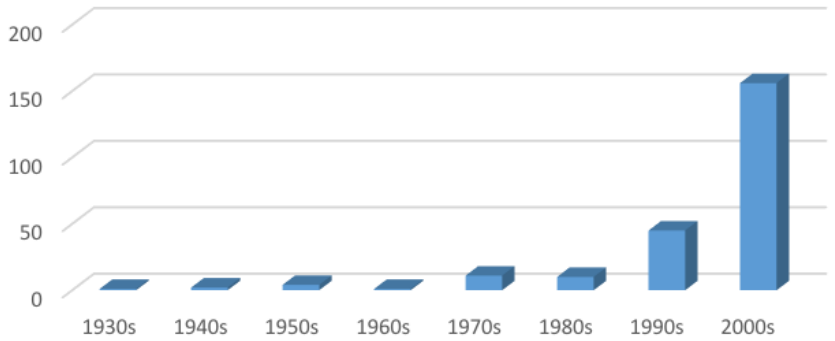
When we look at the rapid increase in the number of universities, we can clearly see in Table 4 that the number of universities increased significantly during 1990s, but more strikingly during 2000s, when Justice and Development Party (AKP) born from the National Vision tradition came to power alone at an unprecedented rate.

3. Universities in Turkey

When we look at the history related to the establishment of Universities in Turkey, we've seen that the foundations of higher education institutions adopting a Western approach were laid in the Ottoman Empire, during the last quarter of the 18th century. The name of Darülfünun, founded in 1846, was changed to İstanbul Darülfünunu in 1924, a year after the establishment of the Republic. It was defined as an autonomous institution under the supervision of the Ministry of Education.

If we take the transformation of Istanbul Darülfünunu to the Istanbul University in 1933 as a beginning point for the Republican Period, we see the first notable increase in the number of universities in the 70s. As we have noted above, the increase in 1990s and especially in the 2000s is highly significant and cannot be explained by demographic reasons alone (Table 4).

Table 4: Number of universities established in Turkey



Source: - Mete Kaynar-İsmet Parlak, 2005:30
- yok.gov.tr (16.03.2018)
- While HEC (YÖK) gives the number of universities in 2018 as 185, Hüseyin Okan Durmuş adds a list and cites
- HEC with 193 universities. (blog.milliyet.com.tr / 06.05.2015).

Right before the 2018 presidential and parliamentary elections, the government made a new move to increase the number of universities. AKP's proposal for the establishment of 15 new universities, by dividing existing universities, including Istanbul University, was enacted despite all the public reactions (Diken, 20.04.2018). Speeches made by Erdoğan as a mayor and later as partisan president show that the educational policies of AKP are being carried out with a populist approach based on votes. Furthermore, it reveals that education is being treated as an instrument of ideological transformation (www.hurriyet.com.tr, 12.09.2008 / 02.02.2012).

Policies that emphasize the political function of education and place "party benefit" in front of "public benefit" serve hegemonic structures. A general definition of the concept of hegemony is that the interests of the ruling class are represented as universal interests.

The emphasis of democracy by the AKP, which defines itself as a "conservative-democratic party", may also be associated with the need of universalism. It is noteworthy in this context that the founding secretary general of the AKP, E.Yalçınbayır expressed that a democratic stance was more prevalent the party's early days, when the party constitution and program were being written, but took a more critical stance against AKP as its conservative identity became more dominant over time (Hürriyet: 08.11.2013).

According to Gramsci, education is a must for the formation and continuity of a hegemonic structure; in this way, the ruling class creates its "organic intellectuals" (1997).

It is possible to see the results of AKP's education policies, which can be defined as the process of creating organic intellectuals, 'to a certain extent' based on the ratio of university graduate voters voting for political parties.

We will examine the voting pattern of university graduates between 1991 and 2015 and to which parties they voted for. However, as the demographic information related to the general election results during this period could not be obtained, public vision studies conducted by

KONDA were used[2]. While this does not give us definitive results, it will allow us to understand ***the tendency*** of the proportions of university graduate voters who voted for different political parties.

4. The Tendency of University Graduates to Vote for Political Parties between 1991 and 2015

The research is based on the assumption that the "well-educated voters vote more for the left-wing parties, and those with lower levels of education vote more for the right-wing parties" is changing.

In connection, the aim of the research is to draw attention to the relationship between the increase in the proportion of university graduate voters voting for right-wing parties and hegemonic education policies.

Two main axes were identified for those who indicated that they would vote "left" and "right" parties in public opinion surveys conducted between 1991 and 2015. Here, "Left parties" refer to CHP and SHP (representing the social democratic line before the reopening of the CHP in the 1980 coup). We can refer to this segment as "central left". "Right Parties" refer to RP, FP and AKP, based on the characteristics of the period covered. This segment consists of parties from the tradition of "Milli Görüş" (National Vision).

The phrase "well-educated" was used to express voters with university and post-graduate education.

In Table 5, the ratio of university graduates indicating they will vote for political parties of Milli Görüş tradition (RP, FP and AKP), and those indicating they will vote for central and leftist parties (SHP and CHP) are compared based on the voting ratios in the public opinion surveys conducted by KONDA between 1991 and 2015.

2 Public opinion studies conducted by KONDA, which could be accessed and obtained with their
identification tags are listed below:
1991 Election Survey, 7-10 September 1991
1993 December Public Opinion Survey
1999 19-21 December 1998
7 June, p.58-77, 18 June 2015
1 November 2015 Ballot and Voting Analysis, Barometer

Table 5: Ratio of Voters with University or Post-graduate education based on public opinion surveys conducted in 1991, 1993, 1999 and 2015.

	1991 %	1993 %	1999 %	June 2015 %	November 2015 %
RP	**7**	**6**			
FP			**10.1**		
AKP				**9**	**10,4**
SHP	**33**	**17**			
CHP		**8**	**15,4**	**20**	**22**
Undecided	8	28	18,1	16	19,4
None	7	1	11,4	22	33,3
Will Not Vote		14	2,7	27	20,4

Tables 5 and 6 enables us to evaluate at what degree the tendency of conservatism among university graduates, as measured by Atlas of Turkish Values in 1990 and 2001, reflects the tendency of voting for political parties. To see this tendency from a wider perspective, 1991 was taken as the beginning point instead of 1995, when RP emerged as the primary party in the elections and which could be regarded as a breaking point to see the tendency from a wider perspective. Public opinion surveys on the June and November elections in 2015 during the AKP government were also included in the tables.

Table 6: Ratio of University Graduates in "Right" (National Vision) and "Left" (National Democrat) Voters

	1991 %	1993 %	1999 %	June 2015 %	Nov. 2015 %
Milli Görüş	**7**	**6**	**10,1**	**9**	**10,4**
Center Left	**33**	**25**	**15,4**	**20**	**22**
Undecided	8	28	18,1	16	19,4
None	7	1	11,4	22	33,3
Will Not Vote		14	2,7	27	20,4
Difference	**26**	**19**	**5,3**	**11**	**11.6**

Table 5 and Table 6 shows an increase in the proportion of voters who indicated that they would vote for the political parties in National

Vision tradition in the public opinion surveys conducted between 1991 and 2015. In 1991, the percentage of university graduates who indicated that they would vote for the political parties in National Vision tradition was 7% but this ratio increased to 10.4% in the November 2015 elections. The rate of increase was +3.4%.

In addition, if we look at the change in the ratio of university graduates indicating that they will vote for the Central Left parties using the data in Tables 5 and 6, we can see that the ratio of 33% in 1991 decreases to 22% in the November 2015 elections. There is a decline of -11%. The decline in the ratio of voters indicating that they will vote for center-left parties between 1991 and 2015 is much more significant –almost three times as– the increase in the ratio of voters indicating that they will vote for the political parties in National Vision tradition during the same period.

Figure 1: Changing trends of university graduates over two political axes between 1991 and 2015

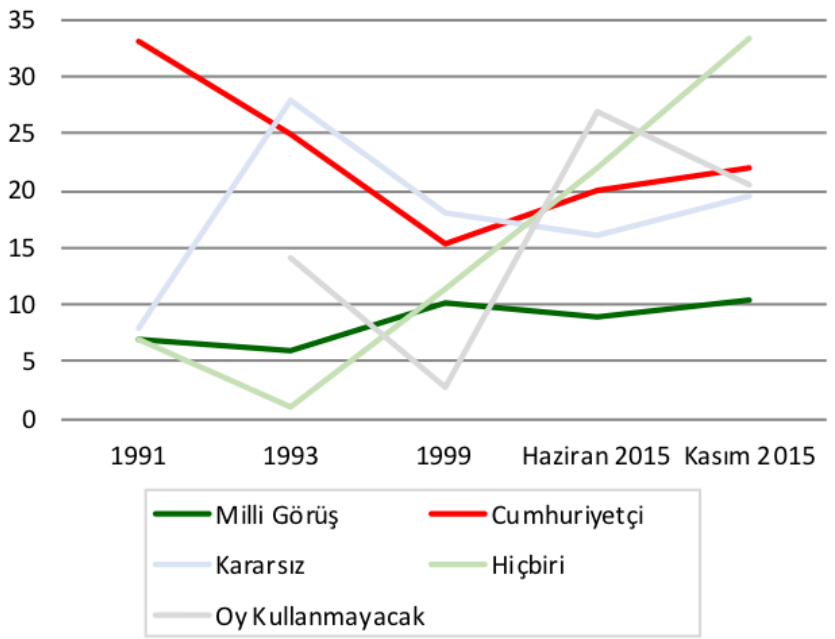
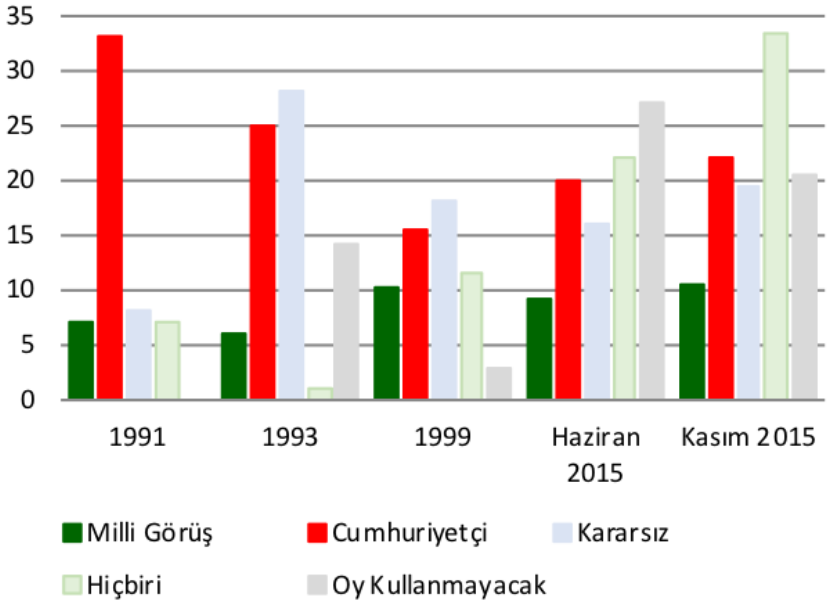


Figure 2: Change in ratio of university graduates over two political axes between 1991 and 2015



In other words, it can be said that there is a gradual increase in the ratio of university graduates voting for Milli Görüş (National Vision), whereas there is a more rapid decline in the ratio of university graduates voting for the Center- Left. Figure 1 and Figure 2 illustrate the case.

5. Conclusion

An "exploratory" study was designed with the hypothesis that the tendency of well-educated voters in Turkey voting for left parties whereas poorly-educated voter voting for right parties *is changing*, based on the increase in conservationism in university graduates since the 1990s according to 2012 Atlas of Turkish Values and the dramatic increase in the number of universities.

Accordingly, the proportions of university graduate voters voting for political parties from the Millî Görüş (National Vision) tradition and those voting for the political parties on the left-wing were com-

pared over the election surveys conducted between 1990 and 2015. It is observed that there is a gradual increase in the proportion of university graduates voting for Milli Görüş tradition, whereas there is a more drastic decrease in the proportion of university graduates voting for the political parties in the center-left.

With the internal feud of Islamist/conservative Milli Görüş (National Vision) tradition after RP emerged as the primary party in the 1995 elections, the adoption of neo-liberal economic policies by AKP – which was born from the same tradition– and abandonment fundamental issues such as national economy, heavy industry and EU opposition moved AKP's position closer on issues such as EU and democracy and unlocked the path for power.

Thus, another highly important difference between these two political traditions –namely Milli Görüş and Center-Left– aside from their ideological difference/opposition is that one (AKP) has been in power continuously since 2002 and the other has been the opposition.

Therefore, we should look for the main cause of why the conservatism among University graduates has been much higher than social conservatism in Turkey following a slow course since the 1990s in the higher education policies pursued by the government. This situation brings Gramsci's theory of hegemony into mind. Accordingly, education is an indispensable condition for the formation and continuity of a hegemonic relationship (Gramsci, 1997). Governments empower their hegemony by creating organic intellectuals through education, which is one of the most important and perhaps even the first of *ideological tools* of the state.

We can conclude that one of the significant reasons of why the proportion of university graduates among voters in the political parties following Milli Görüş (National Vision) tradition is increasing while the proportion of university graduates among voters in the political parties forming the opposition is decreasing is the outcome of higher education policies pursued by the conservative government to raise and acquire organic intellectuals.

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Psychological Problems of Child Refugees

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Abstract

Children refugees are a lot more severely affected by flight than adults. Uprooting and traumata they experience in their own country, during the flight and in the host country cause later even up to 12 years after the immigration, severe emotional problems like grief, sadness, depression, anxiety as well as posttraumatic stress symptoms (PTSD) such as aggression, suicide, violence, nightmares, sleeping problems and lack of concentration.

Traumata hamper also child's cognitive and moral development; learning the new language and academic performance are impaired. Impaired memory, attention and abstract reasoning are common evidences.

Keywords: trauma, unaccompanied refugee children trafficking, PTSD, depression, anxiety.

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Çocuk Göçmenlerin Psikolojik Problemleri

Öz

Çocuk mülteciler, yetişkinlere kıyasla iltica sebebiyle çok daha ağır etkilenirler. Kendi ülkelerinde, kaçış esnasında ve daha sonar da iltica ettikleri ülkelede yaşadıkları köklerinden kopma ve tarvmalar göçten 12 yıl sonraya kadar ağır duygusal sorunlara, depresyon, üzüntü, korku ve travma sonrası stress semptomlarına (agresyon, şiddete meyil, intihar, kabuslar, uyku bozuklukları ve odaklanamama sorunları) sebep olabilmektedir.

Yaşadıkları travmalar kognitif ve moral gelişimlerine de zarar verir ; yeni dili öğrenmeleri ve akademik becerileri engellenir. Hafıza bozuklukları, dikkat ve odaklanma zorlukları, soyut düşünme kabiliyetinin azalması araştırmalarda sık sık görülmüştür.

Anahtar Kelimeler: travma, refakatsiz mülteci çocuk kaçakçılığı, PTSD, depresyon, endişe.

1. Introduction

Around 65 million people had been forced to flee from organized violence. Only approximately fled to Europe (7%) or Northern America (3%) whereas the major refugees' burden is carried by non-Western countries; 37% Middle-East, 27% Africa, 16% in Southern and Central Asia (Ingleby, 2005). Approximately half of the refugee population in the world (52%) are children and adolescents under the age of 18 years old (Bhabha & Young, 1999; Russell, 1999; UNHCR, 2004; Ingleby, 2005; Chak, 2018). Wilson (2012) states that 2 million children have been killed, 6 million disabled and 20 million have become homeless, 18 million children are forcibly displaced, a third of them are refugees or asylum seekers in another country, two-thirds being internally displaced with in their own country (Reed, Fazel, Jones, Panter-Brick, & Stein, 2012). A considerable number of them are children or adolescents who are separated from their parents or caregivers and who are the most vulnerable group among the refugees (Halvorsen, 2002). Bhabha & Young (1999) as well as Bruce (2001) estimated that approximately 2-5% of around 20 million children (Chak, 2018) are separated from their families. But Halvorsen (2002) and Hunter (2001) think that the number of separated children is larger than the officially registered. The legal term for this group of unaccompanied children and adolescents on flight "refugee minors" (Terr, 1991). At present, there are at least 170,000 unaccompanied child refugees in the EU, living under extreme duress, violence and sexual exploitation (UNICEF, 2017).

This article is based on the summary and synthesis of the results of primary research (interviews) about the psychological and cognitive damages of the flight on children. The main aim of this study is to demonstrate the intensity and scope of the psychological and mental disorders of refugee children so that it may be a guide and reference for the public authorities to a widespread setting up of treating institutions with specialized professionals. Every child has a right to be treated to emancipate themselves from the psychological results of flight trauma.

Every form of uprooting but especially flight renders people psychologically vulnerable and places especially minors at a great risk

for the development of psychopathology.[3] The extensively described emotional problems which appear in the host country after the flight constitute severe grief and sadness, depression, withdrawal, anxiety, post-traumatic stress, somatic symptoms, sudden outburst of aggression, low self-esteem, severe guilt feelings, delinquency, suicide, violent behavior, psychosis, nightmares, lack of concentration, sleeping problems (Ajdukovic & Ajdukovic, 1998; Almqvist & Broberg, 1999; Burnett & Peel, 2001; Dyregrov, Gjestad, & Raundalen, 2002; Ferenci, 2001; Hodes, 1998; Hubbard, Realmuto, Northwood, & Masten, 1995; Steel, Silove, Bird, McGorry, & Mohan, 1999). Some studies reveal that these psychological disorders are five times higher in case of unaccompanied refugee children and adolescents than refugee children who arrived the host countries together with their parents (Fox, Cowell, & Montgomery, 1994; Kinzie, Sack, Angell, Manson, & Rath, 1986; Loughry & Flouri, 2001; Macksoud & Aber, 1996; McKelvey & Webb, 1995; Sack et al., 1993; Sourander, 1998).

Younger children show overt aggression, destructiveness, drawings of traumatic events and behavioral re-enactments. Pre-school children and the older group 8-10 years depend to a certain extent on parent's reactions toward traumatic events. If parents respond calmly, the child feels protected and secured, the older group even reflecting on the traumatic events. This means parental communication about traumatic events play a fundamental role (Dyregrov & Yule, 2006). There is a high correlation between mother's distress and child's psychological health: higher levels of depression among mothers is strongly associated with their children's morbidity (Murthy & Lakshminarayana, 2006 in Jabbar & Zaza, 2019).

To give some, empirical research finding on child refugees psychology: in a Kenyan refugee camp all children suffered from PTSD, all children had nightmares; in two camps of Kurdish families 87% of children and 60% of their families showed this symptomology – all with

3 "Younger children might have developemental problems, whereas older children often suffer from depression, psychosis, agressive behavior, and school problems." (Gold, 1992; Kinzie et al., 1990)

war experience. Gaza Community Mental Health found out that among children living in bombardments 54 % suffered from severe PTSD. In Zataari Refugee Camp in Jordan 56% showed symptoms of psychological distress including anger, fearfulness, nervousness, hopelessness and spells of terror and panic and difficulty to sleep. 37% reported to suffer from all distresses. 45% of Syrian refugee children at a Turkish refugee camp experienced PTSD symptoms and 44% depression (Jabbar & Zaza, 2019). %56 of Palestinian children living in war zones have PTSD.

Children are more strongly affected by loss and discontinuities in their life than adults. The multiple loses in uprooting; loss of home, loss of accustomed patterns and norms of family, friends and social relations and culture shake the youngsters deeply and their sense of security, which is, together with continuity of life, the basic prerogative for psychological health.

Traumatic experiences coin the whole child's psyche. Flight involves 3 different epochs of trauma: traumata in the homeland, which constitute the reason for the decision to leave home (ethnic violence, rape, state violence, wars, genocide etc.), traumata during the flight like months-long journey in trucks, trains or lorry containers, pressed in a crowd of many refugees, without sufficient food, dependent on smugglers, and traumata in the host country: not only cultural shock, isolation, deprivation of a private sphere, since almost all refugees first live in camps or other forms of collective housing and confrontation with racism, discrimination and insult and bad treatment. The detrimental impact on self-worth and self-esteem have proven to become a life-long psychological problem. Experiencing the fright to be killed during their residence in the home country and during the flight, watching that beloved persons are being tortured and then assassinated cause a life-long lasting deep anxiety and mistrust against other people as well as again and again repeating breakthroughs of aggression: traumatized children paint black holes or monsters which swallow themselves.

Most refugees have made the experiences that only the strength and physical power enable people to remain alive. Those who have two

options of becoming a culprit or a victim choose to slip into the role of aggressor in order to save their lives. And an illustrative case is that of Ali, who had lost two brothers during the flight. He had experienced that only the law of the strongers' counts. He wanted to belong to the group of strongers' in order never to flee again. He suffered under feelings of shame and guilt because he could not protect his brothers. He decided never to become a victim again. That means to victimize others (Yeşim Ahlers' interviews).

Sarah, on the other hand, seemed to have retreated to a psychic mode of "powerlessness" and to have sworn never to become like the perpetrators who exercised horrible, terrifying acts on their victims. In a kindergarten, when she was attacked by other children she became mute and motionless, surrendered completely, never defended herself and let the aggressor do on herself whatever he wanted to (Yeşim Ahlers' interviews).

Trauma has the property to repeat itself in case of a trauma-trigger. The reaction of a group of refugee children demonstrates how the sound of an approaching helicopter leads to the repetition of an unhealed trauma caused by the bombs and shots before or during their flight: some children hid themselves under the tables, crying and closing their ears with their hands, others become stiff, not able to move. For those children the helicopter noise had become a trigger for death.

Deniz flew with his parents as he was 1 year old and could later remember nothing about the flight. But he showed symptoms of retraumatization, when parents started to pack in suitcases to go on a vacation or visit a relative for few days; it reminded her the preparation for their flight. So babies, young children and youngsters suffer under the consequences of trauma during the flight even if they can not remember, but their total organism reacts (Fischer & Riedesser, 2003).

In their home country many refugee children and adolescents are confronted with prolonged wars, armed conflicts and violence (Jaycox et al., 2002), the context of which impose an enormous stress on passive bystanders. A special group of war victims are those children who are forced to participate actively in war as soldiers, spies or sex slaves. Almost half a million of children are currently serving as child soldiers

in over 50 different countries (Machel, 2001), who have to exist in extremely difficult living circumstances and participate in extreme violence (Derluyn, Broekaert, Schuyten and De Temmerman, 2004). Terr (1991) differentiates between two basic types of traumata: type I refers to childhood traumata characterized by a single, sudden and unexpected exposure to an overwhelming stress and type II which is a result of a process of prolonged exposure to repeated traumata, like repeated sexual abuse or repeated threat. Keilson and Sharpati (1979) use the term "sequential traumatization".

Adult as well as child refugees yearn for arrival in the country of destination which has been idealized as the place of relief, joy and hope. The arrival after long-lasting suffering is interpreted as the begin of a new future. Yet shortly after arrival, the child acknowledges the unfamiliarity of the new society, the different school system and its completely different expectations which the child is doomed to fail to fulfill, unfamiliar rules, and cultural habits, inability to communicate because of the language barrier. Yet traumatized people are usually unable to learn a new language or to concentrate. Lack of social contacts is a result both of language deficiency and of avoidance of the native population any relationship with refugees which alleviate the sense of marginality and isolation.

We often speak about "acculturative stress" (Williams and Berry, 1991) without really comprehending what that means for children and adolescent: lack of complete orientation in life since all internalized the norms, values and standards of behavior are suddenly no longer valid but the new ones are even not recognized so that the identification with them and their internalization are out of question; the process of formation of a super-ego or in other words the developments of a conscience which is based on the internalization of culture and its norms and values is disrupted. Identity confusion and a deficient formation of normative aspects of the new enculturation, that means an unsolved clash of values, their long-lasting contradiction in the personality, are predictable problems of identity development. The acceptance and internalization of new norms, standards of conduct and underlying values of the host country,

against which the youngsters may develop hostility due to the repeating experiences of rejection by the native population, are retarded..

The statistics show that most accompanied refugee youths are between 15 and 18 years of age, in the middle of their adolescence, a critical development period characterized by important physiological, emotional and cognitive changes.

> "It is a time when persons become increasingly aware of themselves as social beings, and the establishment of an adult identity, a complex and demanding process, is initiated (Ajdukovic, 1998). Family values are challenged as the adolescent strives for independence, and the identity development process includes identifications with past and present significant figures, modified to fashion a unique and integrated individual (Erikson, 1968). In times of war or migration however, war brings many traditional ethical values into question, such as 'do not kill' and 'love your fellow man', and basic processes characterizing adolescence – such as separation from parents, choice of social role, the search for an adult identity – cannot proceed normally. As a result, establishing a personal, group and 'philosophical' identity is (Derluyn and Broekaert, 2008), at best, difficult (Ajdukovic, 1998), and the war- and migration-related stress may intensify adolescents' anxiety, impulsiveness, and identity crises. Moreover, war and migration often involve the breakdown of family and other social structures that in times of normalcy provide the institutional framework by which adolescents are socialized into the roles they are expected to occupy as adults (Bruce, 2001). This is certainly true for unaccompanied refugee youths: the separation from parents can complicate this adolescent process even more through the lack of role models or the absence of normal dependence-independence issues (Ajdukovic, 1998; Van der Veer, 2002). How does one challenge the establishment when this has been swept away? What is one's own role when parents may be injured, dependent, missing or dead? How does one reconcile the conflicting claims of parents who may be demanding greater loyalty to ethnic identity, and the demands of the host country for rapid assimilation? (Jones, 1998). The uprooting, disruption and insecurity inherent to migration may thus affect the psychological and social development, making the process of identity formation a more difficult balancing act between two or more sets of cultural notions and values (Fantino & Colak, 2001). And once the young person has been in the new country for several months or years and is adjust-

> ing well, a serious identity problem can develop (Baker, 1982), also because identity development tends to be a more complex process among migrant adolescents who employ more diverse reference models than other adolescents (Hicks et al., 1993)."

In case of unaccompanied refugee children and adolescents, all these processes and psychological conflicts are ongoing without any support and protection of the parents. The presence of parents and other family members may reduce the extend of perceived trauma and of the feeling being overwhelmed by terrifying experiences (Hicks et al., 1993). Being devoid of this role of the family, missing protection and social support, reduces the ability to cope with the psychological effects of distress and trauma. The role of "significant adults" is lost and with it the security, stability, safety and roots of the child.[4]

2. Unaccompanied child refugees in the EU

The west majority of child refugees coming to Europe are from war-torn countries, Syria, Afghanistan, South Soudan, Myanmar and Somalia (UNCHR, 2017). There are nine major migration routes for child refugees to Europe:

- Western African path
- Western Mediterranean path
- Central Mediterranean path
- Apulia and Calabria path
- Circular path from Albania to Greece
- Western Balkan path
- Eastern Mediterranean path
- Eastern Borders path
- Arctic route (newly discovered path)

4 "Among children, success in coping with stress corresponded with the mother's coping skills. Sleeping and eating disorders, separation fears, and withdrawal or aggression were common in case of absence of a mother. Children in a collective shelter were at greater risk for mental disorders than those with host famiIies." (Ajdukovic and Ajdukovic, 1993).

The East Mediterranean Root was the main root for refugees to reach EU until 2014. But as the EU Border Patrol Agency refrained from rescuing and transferring refugees to the Italian costs, the migratory root shifted to the Central Mediterranean path, followed by the Apulia and Calabria path (Alexandridis and Dalkiran, 2017; Dimitropolous, 2017; Frontex online, 2017).

The closure of borders by EU members means lack of safe and legal roots for children seeking asylum and their reliance on smugglers and traffickers. These children often become victims of sexual exploitation (UNICEF, 2016; Gerretsen, 2017). Since the living conditions in refugee camps are extremely poor, many children leave and consequently become targets of organized gangs and criminal networks. The Chief of Staff of Europol, Brian Donald, reported that nearly ten thousand refugee children went missing in 2016 (Vidal, 2017).

Refugee children in Europe becoming victims of criminal groups which exploit them for labor (slaves) and sex are spread all over Europe. To give an example: in 2016 91% of all child refugees arriving in Italy for example were unaccompanied, without parents or guardians, numbering to 25,846 (IOM, 2017). But only 17,245 are registered in reception centers, the difference being missing.

In 2016 UNICEF reported (UNICEF, 2016) dire situation of child refugees living in France in details of rape, slavery and enforced prostitution but also that sexual exploitation by aid workers and volunteers in the camps has become a routine and not even the police help the abused.

Child refugee trafficking is a serious crime with increasing prevalence throughout the EU. Article 3 of the UN Protocol terms human trafficking as:

> "the recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments and benefits to achieve the consent of a person, having control over another person, for the purpose of exploitation". Moreover, the objectives of human trafficking are numerous and "shall

> include, at a minimum, the coerced prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or removal of organs. Enforced criminality, such as, "pickpocketing, shoplifting, drug trafficking and other similar activities which are subject to penalties and imply financial gain." (UNODC, 2016).

Other than that, the children are sold and pregnant women are trafficked into the EU, whose babies are sold to the illegal market (Nielsen, 2016).

We can conclude that none of the EU countries fulfill their legal responsibility to child refugees for protection outlined both in the Geneva Convention (1951) and in the UN Convention on the Rights of a Child. At present, more than 170,000 unaccompanied and separated child refugees in a lawless vacuum in the EU.

3. Conclusion

Studies of child refugees show that the prevalence of emotional and behavioral disorders, especially post-traumatic-stress-disorder (PTSD), anxiety and depression is high. As the number of risk factors accumulates, the likelihood that children will develop psychological disturbances dramatically increases: risk factors can be summarized as below:

Risk factors for mental health problems in refugee children

- Parental factors
  - Post-traumatic stress disorder (PTSD) in either parent
  - Maternal depression
  - Torture, especially in mother
  - Death of or separation from parents
  - Direct observation of the helplessness of parents
  - Underestimation of stress levels in children by parents
  - Unemployment of parents

- Child factors
  - Number of traumatic events—either experienced or witnessed

  - Expressive language difficulties
  - PTSD leading to long term vulnerability in stressful situations
  - Physical health problems from either trauma or malnutrition
  - Older age
- Environmental factors
  - Number of transitions
  - Poverty
  - Time taken for immigration status to be determined
  - Cultural isolation
  - Period of time in a refugee camp
  - Time in host country (risk possibly increases with time) (Fazel and Stein, 2002)

Summary of common presenting symptoms of psychological disorders in refugee children

Common symptoms of psychological disorders constitute:

- Post-traumatic stress disorder
  - Persistent avoidance of stimuli: specific fears; fear of being alone; withdrawal
  - Re-experiencing aspects of the trauma: nightmares; visual images; feelings of fear and helplessness
  - Persistent symptoms of increased arousal: easily aroused; disorganized and agitated behavior; lack of concentration
- Other anxiety symptoms
  - Marked anxiety and worry: irritability, restlessness
  - Other sleep disorders
  - Somatic symptoms including headaches and abdominal pain
- Depression
  - Low mood
  - Loss of interest or pleasure
  - Declining school performance
- Conduct disorders (Fazel and Stein, 2002)

Traumata tremendously affect child's emotional, cognitive and moral development but few studies show that the cognitive functioning, learning including learning of a new language and academic performance are also hampered. The relationship between traumatic events and cognitive functioning is particularly strong for children with PTSD (Kaplan et al., 2016). High rates of PTSD can persist up to 12 years after resettlement (Henley and Robinson, 2011). Evidence has shown and association between trauma and impaired memory, attention, executive skills and abstract reasoning (Beers & De Bellis, 2002; Pynoos, Steinberg, & Wraith, 1995; Toth & Cicchetti, 1998).

Symptoms of PTSD, anxiety and depression interfere directly or indirectly with learning (Beers & De Bellis, 2002).

"Poor concentration, one of the symptom criteria of PTSD, anxiety, and depression, could have direct adverse effects on both the acquisition of new information and cognitive skills, and performance. Intrusive memories of traumatic events may cause the child to be distracted from a learning task and to develop a style of forgetting that dispels the traumatic memories but also inhibits spontaneous thought. As one second grade girl lamented, "I hear everything at school, and then it's just gone. What happened to my mommy comes right back to me"… Symptoms such as hypervigilance, dissociation, altered states of consciousness, and amnesia may adversely affect executive functioning, understanding instructions, working memory (including retention of instructions when problem solving), committing knowledge to long-term memory, category formation, shifting between abstract and concrete thinking, generating problem-solving strategies, and demonstrating a solution to others" ((Kaplan et al., 2016)

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Technology Transfer Collaborations and Organizational Innovation: A Study on YTU Technopark

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Abstract

This study aims to explore the relationship between different types of collaborations and organizational innovation in technoparks. Data was collected through survey from Yıldız Technical University Technopark, Istanbul, Turkey employers and employees. Implications of this study may contribute to better understanding of collaborations that improve innovative activities in technoparks. The results of the study show that collaboration of firms with university has significant effect on behavioural innovation and strategic innovation; collaboration of firms with each other has significant effect on product-marketing innovation, and their collaboration with Technopark Administrative Office has significant effect on strategic innovation. It is also found that firms collaborate mostly with university and technopark administrative office, and that the most frequently observed type of innovation in technopark is

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behavioural innovation. According to findings, technopark companies do not very often make collaborations with university or other parties. However, they are found to have a good level understanding and application of innovation. It is also worth examining the other sources of innovation in technoparks rather than collaborations.

Keywords: Technology transfer collaborations, organizational innovation

Öz

Bu çalışmanın amacı, Yıldız Teknik Universitesi Teknopark'ta bulunan farklı işbirlikleri ile örgütsel inovasyon arasındaki ilişkiyi incelemektir. Örneklem olarak Yıldız Teknik Universitesi Teknopark çalışanları ve işverenleri seçilmiştir. Bu çalışma, inovasyonu artıran işbirliklerinin daha iyi anlaşılmasına katkı sağlayabilir. Çalışmanın sonuçlarına göre firmaların üniversite ile yaptıkları işbirlikleri davranışsal ve stratejik inovasyon, diğer firmalarla yaptıkları işbirlikleri ürün-pazar inovasyonu, ve Teknopark Yönetim ofisi ile işbirlikleri ise stratejik inovasyon üzerinde anlamlı ve olumlu etkiye sahiptir. Firmalar en çok üniversite ve Teknopark yönetim ofisi ile işbirliği yapmaktadır. Teknoparkta en çok gözlemlenen inovasyon türü ise davranışsal inovasyondur. Teknopark şirketleri üniversite veya başka taraflarla işbirliğini çok sık yapmamaktadırlar. Ancak, inovasyon uygulamalarında iyi bir seviyededirler. Teknoparklarda, işbirlikleri dışında da inovasyonu gelişiren faktörlerin araştırılması faydalı olacaktır.

Anahtar Kelimeler: Teknoloji transferine yönelik işbirlikleri, organizasyonel inovasyon

1. Introduction

Technoparks stand as the most important areas for the achievement of technology transfer that is accomplished through establishment of strong university-industry relations (Kılıç, 2011), and the goal of technoparks is the commercialization of successful R&D studies by technology- focused small enterprises (Töreli, 2013).

In this study; technology transfer collaborations taking place in Yıldız Technical University technopark companies are examined, and the effects of these collaborations on organizational innovation are researched. In technoparks, not only university-industry relations, but also other types of cooperations exist. All these cooperations enhance technology transfer. The important collaborations for technology transfer that are in the scope of this study are; the collaborations of technopark firms within themselves, university-firm collaborations and firm-technopark administrative office collaborations. These collaborations take different forms; one way is making common R&D projects under TUBITAK (Scientific and Technological Research Council of Turkey), KOSGEB (Small and Medium Size Enterprises Development Organization) or similar programs, in order to receive funding. In technoparks, such funding programs, both Turkish and European, are encouraged; conferences related to these programs are given in technoparks, and technology transfer offices are ready to help technopark firms for project proposal preparation, partner search, and some other services. Regarding such collaborations existing within technoparks, and the importance of innovative activities through technology transfer. Thus, this study aims to reveal how often technopark companies build such collaborations, and their effects on organizational innovation.

YTU Technopark was chosen for the study considering the importance of the university due to being among prestigious universities in Turkey, and the metropolitan characteristic of the location; Istanbul. The technoparks located in Istanbul are YTÜ Technopark (located in Yıldız Technical University Campus, Davutpaşa), Bogaziçi Teknopark (located in Bogazici University Campus Sarıyer), ITU ARI Teknokent (located in Istanbul Technical University Campus, Şişli) and Istanbul

Teknopark (located in Istanbul University Campus Avcılar). The study initially introduces a broad literature about technoparks in general, and organizational innovation. After literature review, methodology section is presented where measures, research questions, sample, conceptual model, procedure and hypothesis are presented. Methodology section is followed by research findings, discussion of findings and the conclusion sections.

Previous research shows positive relationship between technology transfer collaborations and innovation, or concepts associated with innovation (Erün, 2012; Sakarya, 2012); Previous empirical research especially in Turkey, is very limited. One such study investigates the relationship between university-industry collaborations and innovation which is the study of Çelik, 2011. Not only university-industry, but also other type of collaborations exist in technoparks focusing on technology transfer which has also been subject to research; one example being the study of Erün, 2012. In this study, the existing collaborations within technoparks, and the effect on technology transfer performance is investigated.

As stated above, studies examining the effect of university-industry relations on innovation and related concepts in technoparks are limited. A study investigating other collaborations including university-industry relations, as a whole, on innovation, is not found. Besides, in the scope of collaborations and innovation in technoparks, a study that takes both different types of collaborations and different types of innovation into consideration is not found either. This study aims to contribute to technoparks in the way to enhance the type of collaborations that increase their innovative ability. Technoparks have an important contribution to the science and technology capacity of Turkey. This study also intends to contribute to technoparks by revealing their innovation capability, and the dominant types of collaborations; where all these concepts are significant for them to enhance their competitiveness in the market.

2. Literature Review

2.1 Technoparks

2.1.1. Technoparks in the World

According to United Kingdom Science Park Association (UKSPA), technoparks are centers that consist of buildings, land and high-technology-based firms; associating with universities, higher education institutions or R&D centers, designed in a way to encourage the establishment and improvement of technology-based firms within, having their own administrative offices assisting technology transfer activities (UKSPA, 2008; Kılıç& Ayvaz,2011). The name "Technopark" take different forms depending on the country; "research park" is used in USA, "science park" in Britain, "technology center" in Germany, "technopol" in France, and "technopolis" in Japan (Alkibay, Orhaner, Korkmaz, Sertoğlu, 2012).

The first technopark in the world was established in 1950, today known as Silicon Valley, located in Stanford University Campus in the U.S state of California, today called North California (Haxton & Meade, 2009). After World War II, American companies evaluating the effect of scientific developments contributing to their victory, wanted to strengthen university- industry collaborations. Companies approaching universities for this purpose led to creation of science parks, Silicon Valley being the first (Vila & Pages, 2008). The establishment of technoparks initiated in 1970s in Europe, and 1980s in other parts of the world such as Japan and Israel.

2.1.2 The Establishment of Technoparks in Turkey

Scientific developments have been endorsed by the government since the establishment of Turkey Republic in 1923, under different programs.

Initiation of activities for the establishment of technoparks dates back to 1980s (TGBD, 2015). In 1990, within the framework of university-KOSGEB collaboration, technology centers, called TEKMER, were established; TEKMER can be considered as the first step for technoparks (TGBD, 2015).

Through the end of 1980s, the establishment of first technopark of Turkey, METUTECH, located in ODTU University Campus in Ankara, was initiated, and was completed by 2000 (Zuvin & Afacan, 2005). November 2013 statistics show a total of 52 technoparks in all around Turkey, 39 of them being active and the rest in preparation phase. These technoparks are located in 31 cities, a total of about 2.508 firms with around 23.542 R&D personnel working in (Demirli, 2014). 2015 September statistics indicate number of firms pursuing R&D studies as 3587, with 17.489 projects, the number of personnel reaching up to 36.556 (TGBD, 2015). The figure below (Figure-1: Number of Technoparks in Turkey by year) shows the change in the number of technoparks each year, 2013 data showing the total number until November 2013.

1.2 Innovation

The term "innovation", comes from the latin word of "innovatus", meaning the use of new methods in social, cultural and administrative environments (Elci, 2007). Webster's New World Dictionary(1982) defines innovation as "the act or process of innovating; something newly introduced, new method, custom, device, etc; change in the way of doing things; renew, alter."

In the third edition of Oslo Manual, innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations" (Oslo Manual, 2005:46).

Innovation could be simply explained as the initial presentation or use of an idea, product, service, tool, system, program, or process by an enterprise (Gules and Bulbul, 2004:125). During innovation process, economic and social benefit is derived from knowledge (Elci, 2007:2), as well as from science and technology (TUSIAD, 2003: 23).

Innovation could also be evaluated as a process of management; management of whole activities that take place in idea generation, technology development, the production and marketing process of a

new or improved product, manufacturing method or equipment (Trott, 2002:34).

It is important to emphasize on the difference between "new" and "innovative"; by stating that for a new activity to be considered "innovative" it should be different from the alternatives and attract customers; meaning that customers are willing to buy more and pay more for it with respect to alternatives (Kırım, 2006:6).

Innovation process could be examined in three stages, as suggested by Herzog (2008); "Edge stage" is the first stage where generation of new ideas is accompanied by feasibility studies regarding the market and technological assessments. The development and realization of the ideas occur in the second stage. Testing and evaluation of alternatives also take place in the second stage. Finally, the third stage includes the commercialization of the product (Gümüş and Gümüş, 2015).

3. Relationship Between Technology Transfer Collaborations and Organizational Innovation in Technoparks

Technoparks unite technology and innovation based dynamic companies, where they directly develop relationship between each other and with the university. This close contact among parties enhance flow of information and create a learning environment, which are milestones of technology transfer.

Based on literature review presented in prior sections of this study, the following relationship is hypothesized:

H1: Technology transfer collaborations have a positive influence on organizational innovation.

4. Methodology

4.1. Universe and Sample

The universe of the study consists of companies that operate in Information & Communication Technology (ICT) and Software sector found in Yıldız Technical University Technopark (YTU Technopark). As a result of examining the official website of Yıldız Technopark,

it is found that there are a total of about 342 technology-based firms, 232 operating in ICT (Information & Communication Technology) and Software sector. Therefore, it was intended to reach owners, managers, and people from other positions that have enough knowledge about and could represent the firm. In order to reach the whole universe, administrative office of YTU Technopark was contacted for permission and support. After the necessary permissions, both paper and online questionnaires were prepared. Online questionnaires were sent through email, and paper questionnaires were applied through face-to-face interviews. Within about two months 35 firms responded online, and 65 responded online. Therefore, a total of 100 responds were collected as sample size that represents %68 of the universe.

4.2. Research Questions

Research questions for this study are stated below.

R.Q.1: Is there a relationship between technology transfer collaborations and organizational innovation?

R.Q.2: Does the volume of technology transfer collaborations differ according to number of employees the firm has?

R.Q.3: Does the volume of organizational innovation differ according to the size of the company.

4.3. Conceptual Model

To address the relationship between technology transfer collaborations and organizational innovation, the following conceptual model was developed. The proposed model is shown in

Figure 1 below.

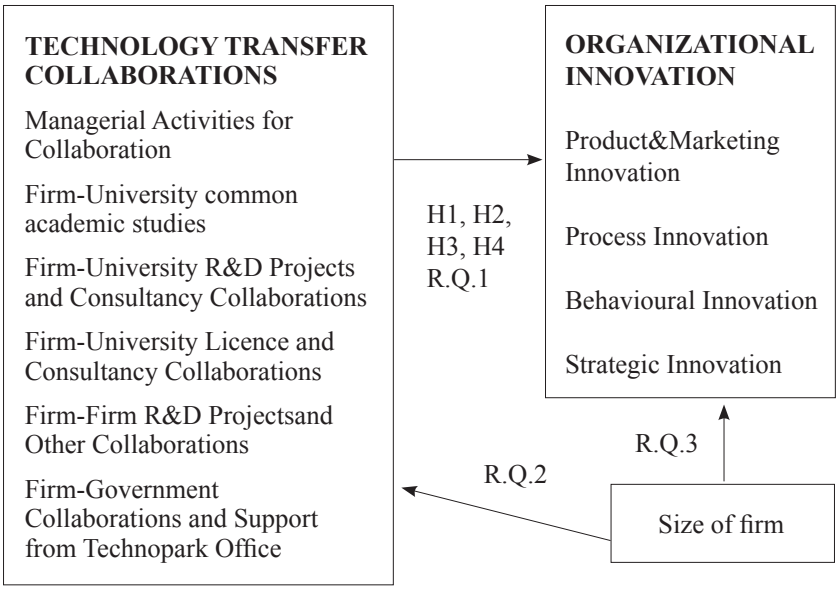

Figure 1: The Proposed Research Model

4.4. Hypotheses

Based on the proposed research model the main hypothesized relationships are as follows:

H1: Technology transfer collaborations positively influence product&market innovation, and explain the variance in it.
H2: Technology transfer collaborations positively influence process innovation, and explain the variance in it.
H3: Technology transfer collaborations positively influence behavioural innovation, and explain the variance in it.
H4: Technology transfer collaborations positively influence strategic innovation, and explain the variance in it.

4.5 Procedure

In order to reach the whole universe, administrative office of Yıldız Technopark was contacted for permission and support. After the nec-

essary permissions, both paper and online questionnaires were prepared. Online questionnaires were sent through email, and paper questionnaires were applied through face-to-face interviews. Within about two months 35 firms responded online, and 65 responded face-to-face. Therefore, a total of 100 responds were collected as sample size that represents 68% of the universe.

4.6. Measures

The questionnaire prepared included 4 independent sections including questions for demographic information and company information, as well as measurement scales designed to assess the constructs of the study. In the first section, purpose of the study and information about the researcher was given, the confidentiality of responses was mentioned. The second section requested information about the individual and the company. The third section included the questionnaire for technology transfer collaborations, and the last section covered the questionnaire measuring organizational innovation.

4.6.1. Demographic Variables and Company Information

The first section covers demographic variables such as gender, age, marital status, position in the company, educational level, and business sector tenure in the organization. Company information such as the size of the company, number of employees, and number of years the firm spent at YTU Technopark were covered as well.

4.6.2. Measurement of Technology Transfer Collaborations

In order to measure technology transfer collaborations, the questionnaire developed by Kılıç (2011) was used., questionnaire consisting of 24 questions, divided in 6 dimensions which are Managerial Activities for Collaboration, Firm-University common academic studies, Firm-University R&D Projects and Consultancy Collaborations, Firm-University Licence and Consultancy Collaborations, Firm-Firm R&D Project and other collaborations, and finally Firm- Technopark Administrative Office Collaborations. Questions were distributed in subscales as 2

questions for Managerial Activities for Collaboration scale, 4 questions for Firm- University common academic studies scale, 3 questions for Firm-University R&D Projects and Consultancy Collaborations scale, 5 questions for Firm-University Licence and Consultancy Collaborations scale, 5 questions for Firm-firm R&D Project and other collaborations, and 5 questions for Firm-Technopark Administrative Office Collaborations. Each subscale measured by 5 items, from "Never" to "Always".

4.6.3. Measurement of Organizational Innovation

To measure organizational innovation, the questionnaire developed by Ahmed & Wang (2004) was used, questionnaire consisting of five dimensions, and a total of 20 questions with 4 questions in each dimension that are Product Innovation, Market Innovation, Process Innovation, Behavioural Innovation, and Strategic Innovation. As suggested later by Ellonen and his colleagues (2008), Product and Market Innovation was united under one subscale. Each subscale was measured by 5 items, from "Strongly Disagree" to "Strongly Agree".

5. Research Finding

5.1. Demographic Findings Related to Age

For YTU technopark, demographic structure is shown in Table 5.1 below.

Table 5.1: Demographic Findings Related to Age

Age	Frequency	Percentage	Cumulative Percentage
18-25	5	5	5
26-30	26	26	31
31-35	42	42	73
36-40	19	19	92
>41	8	8	100
Total	100	100	

As seen on the table, 42% of respondents consist of 31-35 years old people, and 26-30 age is 26%. Respondents older than 41 consist only 8%.

Table 5.2: Demographic Findings Related to Educational Level

Educational Level	Frequency	Percentage	Cumulative Percentage
Doctoral Degree	3	3	3
Masters Degree	18	18	21
Bachelor Degree	78	78	99
College degree	1	1	100
Other	0	0	100
Total	100	100	

As seen on the table, 78% of respondents hold bachelor degree, 18% hold masters degree, and 3% hold doctoral degree.

5.2. Descriptive Findings Related to the Size of the Company

YTU Technopark, as well as other technoparks in Turkey is generally small and medium size companies where number of workers could be 10, 15, and less than 50 mostly.

Table 5.3: Demographic Findings Related to The size of the Company

Size of the Company	Frequency	Percentage	Cumulative Percentage
1-9	8	8	8
10-15	15	15	23
16-24	20	20	43
25-49	45	45	88
50-99	5	5	93
>99	7	7	100
Total	100	100	

Statistics for size of the company is shown on Table 5.7 above.

Majority of respondent work in 25-49 size companies where they consist 45%, as seen in Figure-17 above.

5.3. Factor Analysis

In this study, principal component analysis (PCA) was applied to determine the factors. For each PCA, varimax rotation method was performed.

Before factor analysis, two statistical tests were applied to data set in order to assess its suitability for factor analyisis. The first test is KMO (Kaiser-Meyer-Olkin) index; KMO vale being below 0,50 points inadequacy in sample size, therefore a sign of incompability for factor analysis (Kalaycı, 2008). The second test is Barlett test that tests the null hypothesis of correlation matrix being an identity matrix. Significance value being below 0,05 points invalidity of the null hypothesis and acceptance of high correlations between variables and shows suitability of data set for factor analysis.

Factor loadings define the relationship between item and the factor. A factor loading greater than 0,30 and smaller than 0.,60 corresponds to a moderate relationship, whereas factor loading greater than 0,60 points out a strong relationship. Items having loadings on the same factor measure similar properties and therefore belong to the same subconstruct.

Items loading on more than one factor were examined, and the ones having less than 0,1 difference between highest factor loadings were extracted. For items that load on only on a single factor; the ones loading less than 0,40 were removed (Büyüköztürk, 2002).

KMO and Barlett tests, and Rotated Component matrix with varimax rotation performed are explained in the following sections.

5.4. Factor Analysis for Technology Transfer Collaborations Scale

KMO and Barlett Test were performed for collaborations scale, and the result is shown below.

Table 5.4: KMO and Barlett's Test Results for Technology Transfer Collaborations

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0,705
Bartlett's Test of Sphericity	
Approx. Chi-Square	1692,269
df	276
Sig.	0,000

KMO result higher than 0.50 and Significance value less than 0,05 for Barlett test shows that the data set is suitable for factor analysis. Therefore, factor analysis was conducted; the results are shown below.

Table 5.5: Final Rotated Matrix for Technology Transfer Collaborations

	Component		
Variable	1	2	3
10	0,819		
11	0,742		
9	0,733		
6	0,729		
4	0,717		
13	0,692		
14	0,670		
7	0,648		
5	0,610		
8	0,569		
15		0,748	
16		0,722	
19		0,719	
17		0,653	
18		0,542	
21			0,817
22			0,693
24			0,686
20			0,681
23			0,639
Extraction Method: Principal Component Analysis Rotation method: Varimax Kaiser Normalization			

It is seen on the final rotated matrix given in Table 5.5 above that technology transfer collaborations scale has three subscales. These 3 factors explain around 57,20% of total variance, as stated in Table 5.6 below. For scales that have various factors, high variance is a measure of how the associated concept is measured appropriately, and the total variance should be more than %50. Factor loadings more than 50% as

above confirms the validity of the scales (Hair et al., 1998). Therefore, 57.20% of total variance obtained confirms the validity of the construct.

Questions 3, 12, 1 and 2 were omitted due to low factor loadings (<0,5). 1 and 2 formed the first subscale in the original version of the questionnaire so the corresponding subscale was omitted as well. The remaining items were loaded on 3 factors.

At the end of the factor analysis, 20 items loading on 3 factors were found. These factors are named University-Industry Collaborations, Firm-firm collaborations, and Collaborations with Technopark office. The three original subscales for university-industry collaborations all united under one subscale and therefore the factor is called "University-Industry Collaborations", this factor explains 26.35% of total variance, as stated in Table 5.6 below.

The items loaded on the second factor were all about collaborations between technopark firms, and therefore this factor was called "Firm-Firm Collaborations". This factor explains 15.54% of total variance as mentioned in Table 5.6 below.

Items united under the third factor were all about collaborations with technopark office, and this factor was called "Technopark Office Collaborations". This factor explains 15,31% of total variance as mentioned in Table 5.6 below.

All loadings of the questions are greater than 0,6 as shown in Table 5.5 above; this indicates strong relationship between the item and the factor.

Table 5.6: Total Variance Explained for Technology Transfer Collaborations

Scale	Factors	Number of items	%Variance	Total variance explained(%)
TECHNOLOGY TRANSFER COLLABORATIONS	University-Firm Collaborations	10	26,35%	%57,20
	Firm-Firm Collaborations	5	15,54%	
	Technopark Office Collaborations	5	15,31%	

5.5. Factor Analysis for Organizational Innovation Scale

KMO and Barlett's test results for organizational innovation construct is presented in Table 5.7 below. As KMO value is greater than 0,50 and Barlett test value is smaller than 0,05 the data set is accepted as suitable for factor analysis.

Table 5.7: KMO and Barlett's Test Result for Organizational Innovation Construct

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0,829
Bartlett's Test of Sphericity	
Approx. Chi-Square	1958,166
df	190
Sig.	0,000

Factor loadings of each item are shown in the rotated component matrix presented in Table 5.8 below.

Table 5.8: Final Rotated Component Matrix for Organizational Innovation

ITEMS	SUBSCALES			
	1	2	3	4
1	0,889			
5	0,853			
4	0,834			
2	0,765			
3	0,755			
6	0,611		0,537	
8	0,572			
7	0,528			
20		0,882		
18		0,857		
17		0,857		
19		0,789		
14			0,843	
13			0,801	
15			0,744	
16			0,683	

9				0,842
12				0,814
10				0,792
11		0,508		0,656

As suggested by the original version of the questionnaire, 4 subscales were found; Product and Market Innovation, Process Innovation, Strategic Innovation, and Behavioural Innovation. Items 6 and11 were eliminated as they were loaded on more than one factor. Item 11 was also problematic for the purpose of the study as it was questioning manufacturing methods which is found unrelated with ICT (Information & Communication Technology) and software sector in technopark.

The first factor, Product and Market Innovation dimension, consists of 7 items, and explains 24,26% of total variance. The second factor, Process Innovation dimension, consists of 3 items, and explains 20,69% of total variance. The third factor, Strategic Innovation dimension, consists of 4 items, and explains 17,71% of total variance. The fourth factor, Behavioural Innovation dimension, consists of 4 items, and explains 17,03% of total variance.

Total variance explained was found %79,68 as shown in Table 5.9 below. As stated earlier, total variance being greater than 50% confirms the validity of the scales, as high variance is a measure of how the associated concept is measured appropriately (Hair et al., 1998).

Table 5.9: Total Variance Explained for Organizational Innovation

Scale	Factors	Number of items	%Variance	Total variance explained(%)
ORGANIZATIONAL INNOVATION	Product& Marketing Innovation	7	24,26%	%79,68
	Process Innovation	3	20,69%	
	Strategic Innovation	4	17,71%	
	Behavioural Innovation	4	17,03%	

5.6. Reliability Analysis

Kalaycı (2008) evaluates the reliability level of a test instrument as stated in Table 5.10 below.

Table 5.10: Reliability Scale

Cronbach alpa interval	Reliability
0,00-0,40	Not Reliable
0,40-0,60	Weakly Reliable
0,60-0,80	Quite Reliable
0,80-1,00	Highly Reliable

Cronbach alpha values calculated for each questionnaire and their corresponding dimensions are presented below in Table 5.11 and Table 5.12

Table 5.11: Reliability Analysis for Technology Transfer Collaborations Scale

FACTOR	Items	CRONBACH ALPHA
1	4 5 6 7 8 9 10 11 13	0,887
2	15 16 17 18 19	0,863
3	20 21 22 23 24	0,815

Table 5.12: Reliability Analysis for Organizational Innovation Scale

FACTOR	Items	CRONBACH ALPHA
1	1 2 3 4 5 7 8	0,903
2	17 18 19 20	0,974
3	13 14 15 16	0,942
4	9 10 12	0,892

As all coefficients were found to be greater than 0,80, high reliability was obtained for both of the questionnaires and their dimensions. Likewise, for both instruments, no factor gave higher cronbach alpha value when an item was deleted. Therefore, no more item was removed after reliability analysis.

5.7. Testing the Hypothesis of the Study

While testing the main hypotheses, the following hypotheses were also developed.

H1a: University-firm collaborations positively influence Product and Marketing Innovation, and explain the variance in it.

H1b: Firm-firm collaborations positively influence Product and Marketing Innovation, and explain the variance in it.

H1c: Firm-technopark office collaborations positively influence Product and Marketing Innovation, and explain the variance in it.

H2a: University-firm collaborations positively influence Process Innovation, and explain the variance in it.

H2b: Firm-firm collaborations positively influence Process Innovation, and explain the variance in it**.**

H2c: Firm-technopark office collaborations positively influence Process Innovation, and explain the variance in it.

H3a: University-firm collaborations positively influence Behavioural Innovation, and explain the variance in it.

H3b: Firm-firm collaborations positively influence Behavioural Innovation, and explain the variance in it.

H3c: Firm-technopark office collaborations positively influence Behavioural Innovation, and explain the variance in it.

H4a: University-firm collaborations positively influence Strategic Innovation, and explain the variance in it.

H4b: Firm-firm collaborations positively influence Strategic Innovation, and explain the variance in it.

H4c: Firm-technopark office collaborations positively influence Strategic Innovation, and explain the variance in it.

5.8. Correlation Analysis

With the subscales that are constructed after Factor Analysis, Correlation Matrix calculation was conducted to observe the relationship between constructs.

Table 5.13: Correlation Matrix

		Univ-Industry Collabor Ations	Firm-Firm Collab	Techno Park Collab.	Product &Market Innov	Process Innov	Behav Innov	Strategic Innov
UNIV-INDUSTRY COLLABORATIONS	Pearson Correlation	1	0,280 **	0,358 **	0,047	0,076	0,204*	0,301**
	Sig. (2-tailed)		0,005	0	0,643	0,454	0,042	0,002
FIRM-FIRM COLLABORATIONS	Pearson Correlation	0,280**	1	0,520**	0,328**	0,158	0,081	0,121
	Sig. (2-tailed)	0,005		0	0,001	0,116	0,421	0,229
TECHNOPARK COLLABORATIONS	Pearson Correlation	0,358**	0,520**	1	0,188	0,155	0,174	0,305**
	Sig. (2-tailed)	0	0		0,06	0,123	0,083	0,002
PRODUCT& MARKETING INNOV	Pearson Correlation	0,047	0,328**	0,188	1	0,483**	0,461**	0,436**
	Sig. (2-tailed)	0,643	0,001	0,06		0	0	0
PROCESS INNOV	Pearson Correlation	0,076	0,158	0,155	0,483**	1	0,576**	0,525**
	Sig. (2-tailed)	0,454	0,116	0,123	0		0	0
BEHAV INNOV	Pearson Correlation	0,204*	0,081	0,174	0,461**	0,576**	1	0,738**
	Sig. (2-tailed)	0,042	0,421	0,083	0	0		0
STRATEGIC INNOV	Pearson Correlation	0,301**	0,121	0,305**	0,436**	0,525**	0,738**	1
	Sig. (2-tailed)	0,002	0,229	0,002	0	0	0	

*Correlation is significant at the 0.01 level (2-tailed).
** Correlation is significant at the 0.05 level (2-tailed).

For researches in the scope of social sciences, correlation is found to be weak for pearson correlation below 0,5; moderate for values between 0,50 and 0,70; and strong for values above 0,70 (Sipahi, 2008:145). Therefore, there is a weak correlation between university-industry relationship and strategic innovation (Pearson r=0,301; p=0,002). Likewise, a weak correlation was found between university-industry collaboration and behavioural innovation (Pearson r=0,204; p=0,042). There is a weak correlation between firm-firm collaboration and Product& Marketing innovation (Pearson r=0,328; p=0,001). Similarly, a weak correlation was found between firm-technopark collaborations and strategic innovation (Pearson r=0,305; p=0,002). As stated, all the collaborations are at weak level; firm-firm collaboration and Product& Marketing innovation being the most powerful among all. The summary of collaborations found is shown in the table below (see Table 5.14).

No multicollinearity was detected between any dimensions, as no significant correlation was found between variables of each group.

Table 5.14: Relationship between Collaborations and Innovation

Relationship	Pearson value	Significance value	Strength of the relationship
University-Firm Collaborations and Strategic Innovation	0,301	0,002	Weak
University-Firm Collaborations and Behavioural Innovation	0,204	0,042	Weak
Firm-Firm Collaborations and Product& Marketing Innovation	0,328	0,001	Weak
Firm-Technopark Office Collaborations and Strategic Innovation	0,305	0,002	Weak

Correlation analysis outlines only existence of a relationship between variables, and the direction of this relationship (positive or negative). After correlation analysis, multiple regression analysis was conducted for each innovation component to see the model of the relationships.

5.9. Regression Analysis

Regression analysis was conducted to test the suggested hypothesis of the study. For regression analysis, normality and linearity were assumed. No multicollinearity was detected in correlation analysis.

5.10. The Relationship between Collaborations and Product & Marketing Innovation

Hypothesis H1a, H1b, and H1c are tested in this section.

H1a: University-firm collaborations positively influence Product and Marketing Innovation, and explain the variance in it.

H1b: Firm-firm collaborations positively influence Product and Marketing Innovation, and explain the variance in it.

H1c: Firm-technopark office collaborations positively influence Product and Marketing

Innovation, and explain the variance in it.

Table 5.15: Regression Analysis of Product & Marketing Innovation, University-Firm Collaborations, Firm-Firm Collaborations, and Firm-Technopark Office Collaborations

Dependent Variable: Product& Marketing Innovation			
Independent Variable:	**β**	**t-value**	**p-value**
(Constant)	3,460	13,566	0,000
University-Firm Collaborations	-0,057	-0,564	0,574
Firm-Firm Collaborations	0,301	2,842	0,005
Firm-Technopark Office Collaborations	0,043	0,720	0,720
R^2 = 0,111 Adjusted R^2 = 0,083 p-value =0,000			

As seen from the table, only firm-firm collaboration relationship is significant (0,005). The model can be summarized as below:

Product& Marketing Innovation=0,301(Firm-Firm Collaborations) + 3,460

Therefore, 1 unit increase in firm-firm collab increases Product& Marketing innovation by 0,301 unit. R^2 shows that 11% of the variance in dependent variable (Product&Marketing innovation) could be explained by the independent variable (collaborations). H_{1b} is accepted, H_{1a} and H_{1c} are rejected.

5.11. The Relationship between Collaborations and Process Innovation

The following hypotheses were tested in this section.

H2a: University-firm collaborations positively influence Process Innovation, and explain the variance in it.

H2b: Firm-firm collaborations positively influence Process Innovation, and explain the variance in it.

H2c: Firm-technopark office collaborations positively influence Process Innovation, and explain the variance in it.

Table 5.16: Regression Analysis of Process Innovation, Firm-Technopark Office Collaborations, University-Firm Collaborations, Firm-Firm Collaborations

Dependent Variable: Process Innovation			
Independent Variable:	**β**	**t-value**	**p-value**
(Constant)	3,807	12,182	,000
University-Firm Collaborations	0,014	0,109	0,914
Firm-Firm Collaborations	0,115	0,885	0,378
Firm-Technopark Office Collaborations	0,115	0,794	0,429
R^2 = 0,032 Adjusted R^2 = 0,002 p-value = 0,000			

As seen on the table, no collaboration significantly effects process innovation. Hence H_{2a}, H_{2b} and H_{2c} were all rejected.

5.12. The Relationship between Collaborations and Behavioural Innovation

Hypothesis H3a, H3b and H3c are tested in this section.

H3a: University-firm collaborations positively influence Behavioural Innovation, and explain the variance in it.

H3b: Firm-firm collaborations positively influence Behavioural Innovation, and explain the variance in it.

H3c: Firm-technopark office collaborations positively influence Behavioural Innovation, and explain the variance in it.

Table 5.17: Regression Analysis of Behavioural Innovation, Firm-Technopark Office Collaborations, University-Firm Collaborations, Firm-Firm Collaborations

Dependent Variable: Behavioural Innovation			
Independent Variable:	**β**	**t-value**	**p-value**
(Constant)	3,518	10,302	,000
University-Firm Collaborations	0,212	1,554	0,023
Firm-Firm Collaborations	-0,041	-0,290	0,772
Firm-Technopark Office Collaborations	0,175	1,098	0,275
R^2 = 0,054 Adjusted R^2 = 0,025 p-value = 0,000			

In the correlation analysis table, university-industry relationship was found to be correlated with behavioural innovation (r=0,233). Likewise, it was found through linear regression that university-industry collaboration affects behavioural innovation (Sig=,023 <,05). Hence, Hypothesis H3a is accepted, Hypothesis H3b and H3c are rejected. The model for H3a is as below:

Behavioural Innovation = 0,212 (University-Firm Collaborations) + 3,518

5.13. The Relationship between Collaborations and Strategic Innovation

The following hypotheses are tested in this section.

H4a: University-firm collaborations positively influence Strategic Innovation, and explain the variance in it.

H4b: Firm-firm collaborations positively influence Strategic Innovation, and explain the variance in it.

H4c: Firm-technopark office collaborations positively influence Strategic Innovation, and explain the variance in it.

Table 5.18: Regression Analysis of Strategic Innovation, Firm-Technopark Office Collaborations, University-Firm Collaborations, Firm-Firm Collaborations

Dependent Variable: Strategic Innovation			
Independent Variable:	**β**	**t-value**	**p-value**
(Constant)	2,549	6,743	,000
University-Firm Collaborations	,338	2,241	,027
Firm-Firm Collaborations	-,113	-,721	,473
Firm-Technopark Office Collaborations	,407	2,310	,023
R^2 = 0,140 Adjusted R^2 = 0,113 p-value = 0,000			

As also found in the correlations table, university-technopark office collaborations significantly affect strategic innovation. R^2 value shows that independent variables explain 14% of the variance. Thus, H4a and H4c are accepted. The model could be summarized as below:

2,549 + 0,338 (University-Firm Collaborations) + 0,407 (Firm-Technopark Collaborations) = Strategic Innovation

Hence, one unit increase in technopark collaboration increase strategic innovation by 0,40 unit; one unit increase in unit collaboration increases strategic innovation by 0,338 unit.

A summary of the hypothesis accepted and rejected is shown in the table below.

Table 5.19: Hypothesis Testing with Regression Analysis

Hypothesis	Relationship	Result
H1a	University-Firm Collaborations and Product&Marketing Innovation	REJECTED
H1b	**Firm-Firm Collaborations and Product&Marketing Innovation**	**Substantiated**
H1c	Firm-Technopark Office Collaborations and Product&Marketing Innovation	REJECTED
H2a	University-Firm Collaborations and Process Innovation	REJECTED
H2b	Firm-Firm Collaborations and Process Innovation	REJECTED
H2c	Firm-Technopark Office Collaborations and Process Innovation	REJECTED
H3a	**University-Firm Collaborations and Behavioural Innovation**	**Substantiated**
H3b	Firm-Firm Collaborations and Behavioural Innovation	REJECTED
H3c	Firm-Technopark Office Collaborations and Behavioural Innovation	REJECTED
H4a	**University-Firm Collaborations and Strategic Innovation**	**Substantiated**
H4b	Firm-Firm Collaborations and Strategic Innovation	REJECTED
H4c	**Firm-Technopark Office Collaborations and Strategic Innovation**	**Substantiated**

As stated in the table 5.19 above, four hypotheses were not rejected. A weak correlation was initially found through correlation analysis among the variables involved in the hypothesis. Regression analysis confirms the results found through correlation analysis.

It could be concluded that the most dominant type of the collaboration affecting innovation was university- industry collaborations where it both positively affected behavioural and strategic innovation. Firm-firm collaboration affected Product and Marketing Innovation, and firm-technopark collaborations affected strategic relationship. Process

Innovation was not affected by any type of collaborations where no related hypothesis was accepted. All types of the three collaborations were found to be affecting different types of innovations. Therefore, all the collaborations were important in terms of developing innovation at technoparks. Strategic innovation was found to be affected by both university-industry and firm-technopark collaborations.

In this research, even though collaborations were found to be positively affecting various sorts of innovations, these relationships were found to be weak. Better and more effective implementation of collaborations is expected to result in improved innovative activities.

5.14. Results

Results regarding the research questions are presented in this section.

5.14.1 Volume of Technology Transfer Collaborations in Technopark

Findings for the volume technology transfer collaborations in YTU Technopark are shown in Table 5.20 below.

Table 5.20: Volume of Technology Transfer Collaborations

		Mean	Standard Deviation
Scale	**Collaborations**	**1,96**	**0,95**
Subscales	University-Firm	2,07	0,94
	Firm-Firm	1,73	0,99
	Firm-Technopark	2,08	0,93

Within the scale of 1-5, type of collaborations, and their respective mean according to respondent replies is presented in Table 5.20 above. As seen on the table, university- firm and firm-technopark collaboration has the mean 2,07 and 2,08 respectively, and firm-firm is observed to be the least used type of collaboration. The mean value being 1.96 it could be considered that collaborations are not very dominantly employed in YTU technopark, and remains at a relatively weak level.

5.14.2 Volume of Innovation in Technopark

Findings for the volume of innovation in YTU Technopark are shown in Table 5.21 below.

Table 5.21: Volume of Innovation

		Mean	Standard Deviation
Scale	**Innovation**	3,86	1,01
Subscale	Product&Marketing Innovation	3,97	0,94
	Process Innovation	2,28	0,96
	Behavioural Innovation	4,3	0,98
	Strategic Innovation	3,92	1,16

Within the scale of 1-5, organizational innovation, and their respective mean according to respondent replies is shown in Table 5.21 above. As seen on the table, product&marketing innovation has the highest mean at 3,97, whereas process innovation points the lowest at 2,28. Mean value of innovation is measured as 3,86, which could be considered moderate-high level.

5.14.3. Size of the Company, and Technology Transfer Collaborations

In order to test if technology transfer collaborations differ according to size of the company at technopark, One-Way ANOVA was conducted. Factors for "size of the company" were 1-9, 10-15, 16-24, 25-49, 50-99; alpha being 0.05.

Hypotheses were set as below:

Ho: There is no statistically significant difference on the volume of technology transfer collaborations according to size of the company.

H1: There is statistically significant difference on the volume of technology transfer collaborations according to size of the company.

The result of the One-Way ANOVA test is shown in Table 5.22 below.

Table 5.22: One-Way ANOVA for Size of the Company

	Sum of Squares(SS)	Degrees of Freedom(df)	Mean Square(MS)	F	P-value
Between Groups	3,08	5,00	0,62	0,46	**0,81**
Within Groups	184,92	138,00	1,34		
Total	188,00	143,00			

As P-value (0,81) is higher than alpha value (0,05), Ho was accepted. Therefore, it was found that collaborations do not differ depending on size of the company.

5.14.4 Size of the Company, and Organizational Innovation

In order to test if technology transfer collaborations differ according to size of the company at technopark, One-Way ANOVA was conducted. For the test, factors for Size of The Company were 1-9, 10-15, 16-24, 25-49, 50-99, alpha being 0,05.

Hypotheses were set as below:

Ho: There is no statistically significant difference on the volume of organizational innovation according to size of the company.

H1: There is statistically significant difference on the volume of organizational innovation according to size of the company.

The result of the One-Way ANOVA test is shown in Table 5.23 below.

Table 5.23: One-Way ANOVA for Size of the Company

	Sum of Squares(SS)	Degrees of Freedom(df)	Mean Square(MS)	F	P-value
Between Groups	4,84	5,00	0,97	1,44	**0,22**
Within Groups	76,75	114,00	0,67		
Total	81,59	119,00			

As P-value (0,22) is higher than alpha value (0,05), Ho was accepted. Therefore, it was found that collaborations do not differ depending on size of the company.

Findings of this study are discussed in the following section.

6. Discussion of Findings

The first part of this study covered broad literature review about technoparks both in Turkey and abroad, as well as innovation. The structure of technoparks, and the reason for their establishment in Turkey were also covered within the literature review section. After presenting demographic findings, the study presented factor analysis for innovation and technology transfer collaboration scales, where at the end of the factor analysis, dimensions were detected in accordance with literature suggestions. Organizational innovation, before and after factor analysis, consisted of the following dimensions: Product and Marketing Innovation, Process Innovation, Behavioural Innovation, and Strategic Innovation.

Technology transfer collaborations initially consisted of the following main dimensions: Managerial Activities for Collaboration, Firm-University Common Academic Studies, Firm-University R&D Projects and Consultancy Collaborations, Firm-University Licence and Consultancy Collaborations, Firm-Firm R&D Project and other collaborations, Firm-Technopark Administrative Office Collaborations. After factor analysis, the model was reduced to 3 dimensions which are Firm-University Collaborations, Firm-Firm Collaborations, Firm-Technopark Administrative Office Collaborations.

Later, regression analysis was conducted to test the effect of collaboration dimensions on innovation dimensions. The analysis was followed by one-way ANOVA analysis examining if size of the company, and number of years at technopark caused any difference on technology transfer collaborations, and organizational innovation. The effect of each technology transfer collaborations subscale on each organizational innovation subscale was tested by regression analysis.

The relationship between firm-firm collaboration and Product&Marketing innovation was observed to be the strongest relationship (Pearson correlation: 0,328 with p=0,001) among other relationships. Other significant relationships found were; university-firm collaboration- behavioural innovation (Pearson r=0,204 with p=0,042), university-firm collaboration-strategic innovation (Pearson r=0,301 with p=0,002), and firm-technopark office collaboration-strategic innovation (Pearson r=0,305 with p=0,002). Nevertheless, all relationships found significant were at weak level (Pearson r<0,5). This could be interpreted as that despite the existing effect of collaborations on innovative abilities in YTU technopark, collaborations do not play a very significant role for innovation improvements.

Organizational innovation and technology transfer collaborations were measured in 1-5 scale. The mean value of perceived innovation is found as 3,86, where the means are 3,97 for Product and Marketing innovation; 3,28 for Process innovation, and 4,30 for Behavioural innovation, and 3,92 for strategic innovation. Therefore, innovation of all kinds could be evaluated as moderately high in YTU technopark, behavioural being the highest. However, mean level of collaborations was found as 1.96 which is quite low with respect to organizational innovation; different types of collaborations being 2.07 for university-firm; 1.73 for firm-firm, and 2.08 for firm-technopark administration collaborations. Firm-firm collaboration was found to be the least used type of collaborations. The findings shows that despite weak level of collaborations, innovation was relatively high in YTU technopark, which shows that innovation has other more important sources than collaborations.

According to the results of the study, university-industry collaborations affect both behavioural and strategic innovation. Many literature finding support this result, one such study (Kaufmann and Tödling, 2001) stating the importance of a successful university engagement with industry resulting in information and technology transfer from university to industry leading innovative product, service, and processes.

Firm-firm collaborations being the least employed type of collaborations, having a mean value of 1,73; still has effect on Product and

Marketing Innovation. It could be concluded that not many firms engage in firm-firm collaborations, and the ones having such collaborations aim to make a specific product or a specific marketing application where technological abilities and various strengths of each firm functions are united.

The next type of collaborations affecting innovation is technopark office collaboration that is observed to be affecting strategic innovation. Technopark offices help strengthening social interaction between companies through organizing various events and services primarily such as trainings, seminars, conference, and fairs.

One- way ANOVA test showed no meaningful difference on the volume of collaborations and organizational innovation depending on size of the company. Indeed, because the companies in technopark are generally of similar sizes (mostly small firms of 30-50 employees), the effect of size was not appropriately measurable in this study. One-way ANOVA test resulted in that there is no meaningful difference on the volume of innovation, depending on number of years spent at technopark. This points that spending more time in technopark does not increase engagement in collaborative activities. Considering that technopark companies already go through selection process, and should fulfill many requirements to be accepted to technopark; they already arrive technopark with a good knowledge about implementation of innovative activities there.

7. Conclusion and Suggestions

As stated in the previous section, innovation was found to be relatively high even though collaborations were at weak level. This may indicate that innovation has more important sources than collaborations in YTU technopark. These sources should be examined and improved. However, collaborations were found to be significantly influencing some types of innovation. This means that volume of collaborations in technopark should be increased in order to strengthen innovative abilities. Accordingly, the ways to improve these collaborations should be examined. At this point, it is important to emphasize that not only the

quantity, but also the quality of collaborations should be improved.

In order to increase university-firm collaborations, similar to technopark offices established in technopark, offices could also be established in university campus. Benefits of engaging in university-industry collaborations such as finding training and future employment opportunities, could be told to university students. Similarly, more benefit could be provided to students such as having the chance to get rewards and scholarships for being involved in successful university-firm projects. Firm-firm collaborations could be improved by funding programs (such as TUBITAK (Scientific and Technological Research Council Of Turkey)) encouraging partnerships by ways such as creating programs requiring the involvement of at least two parties to apply for funding.

This study was limited to YTU technopark. In order to deduct general results about overall technoparks in Turkey, a study covering all technoparks in Turkey must be pursued. Such study could contribute to the development of innovation strategies for technoparks.

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Geo-Politics in India and Iran Strategic Cooperation

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Abstract

India and Iran are relations are of centuries old and throughout the whole history their relationship has gone through many ups and downs due to the changing, domestic, regional and global situation from time to time. For instance before the British rule in India both the countries experienced a very close relationship in which both the nations enriched each other's trade, culture, art, literature, architecture, tradition and left a permanent stamp on their social, political and economic aspects. During the second half of the 20th century the incidents like emergence of Cold war, India-Pakistan wars, Iranian revolution, the decade long Iraq-Iran war and, internal political instability in India etc dominated, restricted and created hurdles in the growth of India and Iran relations. With the turn of 21th century both the countries experienced stability and tried to re-engage but the US invasion of Afghanistan and Iraq, the unveiling of Iranian nuclear program, imposition of international sanctions on Iran emerged as new challenges. No doubt the suspension and re-integration of Iran in world economy and the changing power structure in Middle East due to political turmoil on the

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one hand. The transformation from geo-politics to geo-economics in South Asia, through the Chinese Belt and Road initiative, rising Indian economy, and description of Iran as the "Golden Gateway to Central Asia" by Indian Prime Minister on the other hand, provided new opportunities to both the countries for strengthening their relations as both are looking to play a dominant role at regional and global levels. But the US withdrawal from the nuclear deal brought new challenge before the two countries. Therefore the objective of this article is to analysis the main factors in India and Iran relation and the future course of action for overcoming the new challenges posed by the imposition of sanctions on Iran.

Keywords: Energy, Investments, Development of Chabahar Port, Indian interests in Iran and the US, India, Iran and the US Triangle.

Öz

Hindistan ve İran ilişkiler, asırlardır yaşanmakta ve tarih boyunca iç, bölgesel ve küresel durumların değişmesi nedeniyle birçok iniş çıkışları görmüştür. Örneğin, Hindistan'daki İngiliz yönetiminden önce her iki ülke, birbirlerinin ticaretini, kültürünü, sanatını, edebiyatını, mimarisini ve geleneğini zenginleştirmişler. Ayrıca bu ilişkiler söz konusu ülkelerin sosyal, politik ve ekonomik yönleri üzerinde kalıcı bir damga bırakmıştır. 20. yüzyılın ikinci yarısında Soğuk savaşın ortaya çıkışı, Hindistan-Pakistan savaşları, İran devrimi, on yıl süren Irak-İran savaşı ve Hindistan'daki iç siyasi istikrarsızlık gibi olaylar nedeniyle Hindistan İran ilişkilerin büyümesi kısıtlanmış ve engellenmiştir. 21. yüzyılında her iki ülke istikrara kavuştu ve yeniden etkileşime dönemi başladı. Ancak ABD'nin Afganistan'a girmesi, İran'ın nükleer programının açığa çıkması ve İran'a uluslararası yaptırımların getirilmesi yeni zorluklar olarak ortaya çıktı. Kuşkusuz bir yandan dünya ekonomisinde İran'ın askıya alınması ve bir daha entegre edilmesi, siyasi çalkantı nedeniyle Ortadoğu'daki değişen güç yapısı, diğer taraftan Çin'in kuşak ve yol girişimi, yükselen Hint ekonomisi ve Hindistan Başbakanı tarafından İran'ın "Orta Asya'ya Altın Geçit" olarak tanımlanması gibi faktör-

ler yoluyla Güney Asya'daki jeopolitik'in jeoekonomisine dönüşmesi her iki ülkenin de bölgesel ve küresel düzeyde baskın bir rol oynamaya çalıştıkları için ilişkilerini güçlendirmesine fırsat vermiştir. Ancak ABD'nin nükleer anlaşmadan çekilmesi söz konusu iki ülkenin önünde yeni zorluklar getirmiştir. Bu yüzden mezkûr makalenin amacı, Hindistan ve İran ilişkisindeki ana faktörleri ve İran'a yaptırım uygulanmasının getirdiği yeni zorlukların üstesinden gelmek için gelecekteki eylem sürecini analiz etmektir.

Anahtar Kelimeler: Enerji, yatırımlar, Çahbahar limanının gelişimi, Hindistan'ın İran ve ABD'daki çıkarları, Hindistan, İran ve ABD üçgeni

1. Introduction

With the turning of twenty first century, India experienced renewed energy, vigour, and planning in India's engagement with the rest of the world. India increasingly came to occupy a new role in the world, as a confident, articulate, rising power, willing to claim its place on the global high table and able to discharge its responsibilities. No longer content to merely react to international developments, frequently acted to shape and even initiate them. On its part, the world visibly acknowledged India's potential to act as a leading actor. Consequently expanded the India engagement with various regions of the World instead of restricting outreach to each country separately, India approached regions in an integrated and holistic way (Ministry of External Affairs, 2015-16). It also expanded the footprint of Indian diplomatic engagement to cover regions and countries through the policies of "Neighbourhood First," "Making India," "Act East" and exchange of high-level visits.

However, the new century also brought new challenges both at internal as well as external levels and restricted India's growth and development. The challenges that emerged with greater intensity at domestic level are, rapidly increasing energy demand, unemployment, poverty, lack of health care facilities as well as infrastructure development etc. While on the external front main challenges are older but came up in a new shape that is China-Pakistan nexus. India considers both the countries as the imminent threat to her national security, integrity and economic growth and development. China-Pakistan nexus imposes heavy and critical burdens on Indian foreign policy contextually in relation to South Asia, West Asia as well as in Central Asia. With particular reference to the China, is strongly following her expansionist policy through the implementation of Belt and Road initiative. The Belt and Road initiative is composed of two types of project (a) development of Silk Road Economic Belt (b) development of 21st Century Maritime Silk Road. The Silk Road Economic Belt is designed to interconnect China, Central Asia, Eastern and Western Europe through the Mediterranean Sea, the Persian Gulf, the Middle East and South-East Asia.

The aim of 21st Century Maritime Silk Road is to establish an efficient transport route interconnecting major ports of different countries in South Asia, Middle East, Africa and the Mediterranean. The route runs from China's East coast to Europe through the South China Sea, Indian Ocean and then into the South Pacific. The blueprint of Belt and Road Initiative covers over sixty countries which accounts for sixty percent of World's population and a collective GDP equivalent to thirty three percent of the World's wealth. The Chinese initiative also includes six economic corridors

1. New Eurasian Land Bridge
2. China - Mongolia - Russia Corridor
3. China - Central Asia - West Asia Corridor
4. China - Indochina Peninsula Corridor
5. China – Pakistan Economic Corridor
6. Bangladesh - China - India - Myanmar Corridor. (China British Council, 2017).

The initiative mainly emphases cooperation in five major areas, coordinating development policies, developing infrastructure and networks facilities, deepening investment and trade relations, increasing financial cooperation and expanding social and cultural exchanges. However, from the beginning India has opposed the initiative and from time to time formally as well as informally has raised its concerns at domestic and global level. The main issue that India formally raised is the China-Pakistan economic corridor which goes through the disputed territory of Jammu and Kashmir, openness and transparency, as well as equality and sovereignty. In response to a question the Indian State Minister in the Ministry of External Affairs replied that,

> *"The inclusion of the so-called China-Pakistan Economic Corridor (CPEC), which passes through parts of the Indian state of Jammu & Kashmir under illegal occupation of Pakistan, as a flagship project of OBOR reflects lack of appreciation of India's concerns on the issue of sovereignty and territorial integrity. Government has conveyed to the Chinese side, including at the highest level, its concerns about their activities in Pakistan Occupied Kashmir and asked them*

> *to cease these activities."* (Ministry of External Affairs of Indian Government, 2017).

The spokesperson of Indian Ministry of Foreign Affairs Mr. Gopal Baglay in his interaction with news reports also said that

> *"India is of firm belief that connectivity initiative must be based on universally recognised international norms, good governance, rule of law, openness, transparency and equality."*(The Economic Times, 2017*).*

In a lecture at the International Institute for Strategic Studies in Singapore the Indian former Foreign Secretary Subrahmanyam Jaishankar said that

> *"One Belt One Road initiative was China's own unilateral effort and that India would not commit to buy-in without significant consultation."* (Cai, 2017*).*

There are also think tanks and academicians who consider the Chinese initiative as a strategic and collective move on the part of China to encircle India and to strengthen and increase Chinese dominance in the South Asian region. They consider the Chinese investment not only as a soft tool to imperialism the poor and underdeveloped countries but also to get easy access to vast natural resources, untapped market, huge low-cost manpower and developing the ports for its military purpose in long run. Further the Chinese support and backing to Pakistan make India even more suspicious about the strategies of China (Gurmeet Kanwal, 2017). India considers the backing of China to Pakistan both on the domestic and external front by providing military, economic and diplomatic support is helping Pakistan to sabotage the India's initiatives against Pakistan. And the involvement of China in Kashmir through the China-Pakistan Economic Corridor will make China to change her stand on the issues as well as add China as a third party to the dispute which further internationalise the Kashmir dispute (Kapila, 2016).

While on internal front the rapid increase in population, urbanisation, rising income and fast economic growth of over past few years gave birth to a serious challenge of meeting the rapidly increasing energy demand and employment generation. India is on third place after China and United States in the list of largest energy consuming countries of the World (Global Energy Statistical Yearbook, 2017).The B P Statistical World Energy Review 2017, shows the primary energy consumption of India increased from 414 to 723.9 million tonnes oil equivalent (MTOE) from 2006-2016 showing the increase of 318.9 million tonnes oil equivalent that is increase of 57.1% with growth rate of 5.7% and 5.4% in 2015 and 2016 respectively. In year 2015 the total consumption of primary energy in India was 685.1 MTOE which increased to 723.9 MTEO in the year 2016. The oil consumption of India in 2015 was 95.8 million tonnes (MT) which increased to 212.7 million tonnes in 2016, that is an increase of 117.6 MT, natural gas consumption was 41.2 MTOE which increased to 45.1 MTOE that is an increase of 4 MTOE, Coal consumption increased from 396.6 MTOE to 411.9 MTOE, shows the increase of 15.3 MTOE in a year. Nuclear energy decreased from 8.7 to 8.6 MTEO, hydro-electricity decreased from 30.2 to 29.1 MTEO and the consumption of other renewable energy increased from 12.7 to 16.5 MTEO from the year 2015 to 2016. Further the total proved reserves of oil shows the uninterrupted decrease, at the end of year 2006 it was 5.7 thousand million barrels which reduces to 4.7 thousand million barrels at the end of the year 2016. The situation of the daily oil production sector is also not different, no doubt from the year 2006 to 2011 it showed an increase from 760 to 916 thousand barrels per day but from the year 2012 it showed continuous decrease, in 2011 it was 916 thousand barrels per day which reduced to 876 thousand barrels per day in 2016. While on the other hand the daily oil consumption is also increasing rapidly with each passing year. In the year 2006, it was 2737 thousand barrels per day which reached to 4489 thousand barrels per day in year 2016 that shows 60% increment in the daily consumption of oil during the period. In the natural gas sector India holds 1.2 trillion cubic metres that is 0.7% of proved global natural gas reserves. The annual natural gas production

from the 2006 to 2011 showed the increasing trend. During the period the annual production increased from 29.3 to 44.5 billion cubic meters while from 2011 onwards it shows the rapidly decreasing trend. From 2012-2016 the production rate decreased from 44.5 to 27.6 billion cubic meters that shows the drop of 16.9 billion cubic meters in last four years. The consumption rate of natural gas is also on rise in 2006 it was 37.3 billion cubic meters which reached to 50.1 billion cubic meters in 2016 that is the increase of 12.8 billion cubic meters during the period. In coal sector, at end of the year 2016 India occupies total 94769 million tonnes of proved coal reserves. The annual production of coal increased form 198.2 MTOE in 2006 to 288.5 MTOE in 2016 which shows an increase of 90.3 MTOE during the period. The coal consumption also shows the simultaneous increase during the period that is from 219.4 to 411.9 MTOE which constitutes an increase of 192 MTOE in between 2006-2016. Further there is also a considerable increase in the consumption of nuclear energy and hydro-electricity as well. In the year 2006 the nuclear energy consumption rate was 4.0 MTOE and in 2016 it reached to 8.6 MTOE. During the same period the consumption of hydro-electricity increased for 25.5 to 29.1 MTOE and the consumption of other renewable energy consumption increased from 3.3 to 16.5 MTOE from 2006 to 2016 (B.P. Statistical Review of World Energy, 2017).The International Energy Outlook 2017, also forecasted that by 2040 India's commercial sector will be the largest consumer of energy in whole world. The report expects that consumption of energy in India is expected to increase by an average of 2.7% per year in between 2015 to 2040 which is more than twice the global average increase. The residential energy consumption is expected to grow by an average of 2.4 percent by the period and is the fastest growth rate in International Energy Outlook regions. The report mentions that there is an increase of an average of 3.2 percent per year in the people getting access and ownership or utilization of electronic appliances and equipment that also is expected to double the electricity consumption rate of India by 2040 (Hojjati, 2017).

Meanwhile Iran on the other hand has gone through one of the toughest phase of her history at national, regional as well as at the in-

ternational levels. With the turn of twenty first century and particularly after the 9/11 attacks on US, Iran faced new challenges particularly at the regional and international level which continues even today. The attacks on the one hand resulted in the deployment forces and encirclement of Iran by the country that is regarded by Iran as the greatest enemy (the US). While on the other hand the instability in Afghanistan and Iraq also increased vulnerability for her national security. Further unveiling the secrecy of nuclear programme created new challenges for Iran on the domestic as well as global level. The withdrawal of the US forces in Iran's neighbourhood brought some relief to Iran but the mismanagement as well as wrong decision making on the part of US in rebuilding and reconstruction of the war torn countries Afghanistan and Iraq on the one hand. The increase in enmity of Iran-US relations, and Iran-Saudi Arabia relations on the other hand raised new issues and challenges for Iran. On the part of mismanagement and hasty decision making in rebuilding of Iraq and Afghanistan increased instability and anarchy in the countries that gave birth to new issues particularly the huge inflow of refugees from Afghanistan and Iraq into Iran. The inflow of refugees not only increased pressure on the already sanctions ridden Iranian economy but also increase other social and security problems particularly the inflow of narcotics into Iran. In case of the huge inflow of refugees during the past three decades has turned Iran into one of the largest refugee hosting countries of the world. During the registration process in 2015, 9, 51,142 Afghan refugees and 28,268 Iraqi refugees made their registration. It is estimated that there are over 3.6 million Afghan refugees and over 28000 refugees from Iraq and there are also 1.5 to 2 million undocumented Afghanis residing in Iran as well (UNHCR, 2014).With reference to the increase in the menace of opium and drug trafficking in the Iran and other regional countries, the RAND 2014 reports that, Iran is having nearly about 2 million people and majority of them are youth who are addicts of heroin and opiates (RAND Report, 2014). Parviz Afshar the spokesperson for the Drug Control Organisation of Iran said that there are more than 2.8 million drug addicts in Iran and even the number may be higher (BBC News, 2017). The World

Drug Report 2017 also reported the rapid increase of land under opium and poppy cultivation in Afghanistan. The report mentions that in year 2005 it was to 104,000 hectares which increased to 201,000 hectares in the year 2016. The report further mentions that 85% of global opium poppy is cultivated in Afghanistan. The production level oven-dry opium in Afghanistan has also on increase and has increased from 4,100 tons to 4,800 tons from 2005 to 2016 (World Drug Report, 2017).

While on the external front Iran has been continuously facing the increasing instability and uninterrupted changes in the regional power configuration. The region is going through new phase of unending political crisis and turmoil that started with the US invasion of Afghanistan and Iraq. The event like rise of Arab Spring in 2010, fall of decades old regimes, rise of ISIS and the increase in Iran-Saudi Arabia competition for filling the power vacuum as well as protecting and supporting their respective allies and groups in the region created challenges for Iran. For increasing and strengthening her position, Iran on the one hand committed his military, economic, political and technical involvement in the region both overtly and covertly for increasing her influence by supporting, establishing and strengthening the pro-Iran and Shai dominant government and groups in the region (Mehr News, 2017). And on the other hand, it faces the challenge of reconstructing the sanction ridden economic, industrial, defence and social sectors. After signing the nuclear deal with West in 2015 and subsequently suspension of economic sanctions Iranian people expected inflow of international investment and improvement in the country's economic conditions. In the year 2017 Iran became the fifth largest oil producing country with 1.3 million barrels export of oil per day. It raised her GDP to 1.631 trillion dollars which is total increase of 12.5 percent (Amadeo, 2017). However the corruption, lack of foreign investment, continuous turmoil and involvement in expanding her influence in the regional countries has forced Iran to divert a large amount of her oil revenues for supporting her allies and pro-Iran militias rather than utilising it for improving her internal conditions that put extra-burden on the Iranian economy. The resentment of Iranian people due to the issues of increasing inflation,

unemployment, mismanagement, corruption and fast increasing economic disparity came out in shape of recently violent protests against the government which resulted in killing of over twenty people (Tehran Times, 2018). All the challenges both internal as well as external of Iran increased necessity of foreign investments in infrastructural development particularly in exploration, refining and marketing the oil and gas resources, employment generation, building defence and technological capacity, developing health sector, transportation, manufacturing, tourism, increasing export of Iranian goods, and diversifying as well as increasing her market access etc.

Therefore, taking the rapidly changing regional scenario into consideration both in South Asia and Middle East regions, the cooperation between India and Iran would play a determining role in overcoming their respective emerging domestic and regional challenges. There are areas between two countries particularly in energy, investment, trade, and infrastructural development which would transform their mutual cooperation not only into a long term strategic partnership but would extend its benefits to other countries and regions. The main areas and interests of India that are at stake are:

2. Energy Sector

In contemporary era, energy resources are considered as the backbone for developing the economy of countries. As mentioned in previous pages India is one the leading energy deficit countries and with the passage of time her dependence on the import of energy resources is increasing with very rapid speed. With the objective of maintaining and further increasing her economic growth India is heavily dependent on maintaining the secure and stable energy supplies. The continuous political turmoil and instability in the Middles Eastern region, which is main source for her energy supplies has caused a concern for the stability and security of her supplies. Therefore India constantly is in search of new sources of energy supply and tries to diversify her energy supply line to other countries and regions. The diversifying of energy supplying countries and regions would put India not only in a position

of bargaining but also ensure safety, security and stability in her future energy supplies. With respect to the India and Iran relations in energy sector, Iran has remained one of the main energy (particularly crude oil) supplying countries to India. Till 2011 Iran was the second largest supplier of crude oil to India after Saudi Arabia but the economic sanctions over Iran demoted Iran to seventh place. However, after the signing of the nuclear deal Indian import of crude oil increased subsequently. In the 2017 Iran has overtaken the Venezuela and Nigeria with 27.2 MT has become the third biggest crude oil supplier to India (The Economic Times, 2017).

For Iran, India is the second largest oil market after China (Iran Daily, 2017).On the part of availability of energy resources in Iran as per US Energy Information Administration, Iran holds the world's fourth largest proven crude oil reserves. Iran holds 10 percent of world oil reserves excluding the almost 500 million barrels of untapped proven and probable oil reserves in the Caspian Sea. Iran also shares many onshore and offshore oil fields with other countries like Qatar, Iraq, Saudi Arabia and Kuwait. With respect to the Iran's natural gas reserves it is the second largest country having natural gas reserves after Russia. It holds one third of the OPEC natural gas reserves and 17 percent of world reserves (US Energy Information Administration, 2015). Despite going through the long and hard sanctions imposed by the EU and US in response to US-Iran relations and Iranian nuclear programme, Iran moved ahead on gas front. Its plans to develop the huge Pars field, the Khuff reservoir of the Salman oil field, the Zireh field in Bushehr province, the Homa field in the south Fars province, the Tabnak in southern Iran, the onshore Nar-Kangan fields, the Aghar and Dalan fields in Fars province and the Sarkhoun and Mand fields. Most of Iran's attention has focussed on the giant South Pars offshore field which is being developed in 28 phases. But still there is huge amount of untapped oil and natural gas reserves in Iran for which Iran needs huge investment and technological support (Pranav, 2011). For taking their mutual cooperation to new heights both the countries are working on development different projects. The negotiations on the development of Farzad-B

gas field which was discovered by India, Iran-Oman-India deep sea gas pipeline is going. India has also planned to bid for the Azadegan oil field as well (The Economic Times, 2018).

2.1. Development of Chabahar Port

The second most important areas that are of great importance for India is the Chabahar Port, and increasing connectivity particularly by the development of roads and laying the railway line etc. With this respect both the countries are working on number of projects but the most important are the development of Chabahar Port and International North South Transport Corridor, and establishment of a railway line between the Chabahar port to Afghanistan. These projects occupy the great strategic significance for India. Chabahar Port has the capacity to strengthen and expand the India's strategic importance. Iran plans to develop the Chabahar port as third largest hub for Petrochemical industries after Assaluyeh and Bandar Imam. Iran is going to build 16 basic petrochemical complexes in three different phases containing Urea, Ammonia and Methanol producing plants. Iran has also plans to lay a rail line between Chabahar port, Zahedan and Mashhad, and to transport ethane gas from South Fars to Chabahar Port (Razvi & Alam, 2015).Iran has taken various steps like declared the port as a free trade zone, has invested almost US $ 2.5 million for increasing the capacity of Port from 2.5 million tons to 12.5 million tons per year for transforming the Chabahar port into a commercial hub. The development of the Chabahar port could play an important role in shipping industry of Iran as it is Iran's first deep sea port and can decrease the pressure on the Bander Abbas which is having the capacity of only 100,000 tons. The Bander Abbas handles 85 percent of Iran's shipping. At present UAE is the first dock for the Iran bound ships exceeding the 100,000 tons of cargos where the shipment is loaded on smaller ships to suit the shallower waters of BanderAbbas (Sudha, 2014).For India the Chabahar port besides opening vast investment opportunities in Iran, also strengthens India's strategic position against China-Pakistan Economic Corridor as it is only 72 miles away from the Pakistani Gwadar port and provides access route to Afghanistan and Central Asia by bypassing Pa-

kistan. After suspension of international sanctions on Iran and China's rolling out of Belt and Road Initiative, as well as US's assurance to India on the exemption of Chahabar investment under imposition of new sanction (Ahmed, 2017). India intensified its diplomatic efforts in this respect and considers it as strategically important to overcome the encirclement of India and changing regional situation in South Asia. During the Indian Prime Ministers visit to Iran in 2016 the three countries India, Iran and Afghanistan has signed a Trilateral Agreement on Transit and Transport and India has also shown her interest in in setting up of fertilisers, petrochemical and metallurgy plants in Chabahar Free Trade Zone (Ministry of External Affairs of Indian Government 2016-17). During the recent visit of Iranian President Hassan Rouhani to India both the countries have signed the one year lease agreement of the chahabar phase first which was operationalised in 2016 and the Indian Prime Minister described the Chabahar as "India's Golden Gateway to Central Asia" (Bureau, 2018). The two countries are also the signatories of International North South Transport corridor and both are favouring to connect it with the Cahabahar port and in case of connecting it with Afghanistan, India-Iran has already constructed the Delaram-Zaranj-milak-chabahar road link and is now working on laying a railway line interconnecting Afghanistan and Chabahar port. Through the port India not only tries to contain Pakistan's interference in the Kashmir but also tries to deprive it from the Afghanistan market for it goods and services. In the year 2016 the trade between Pakistan and Afghanistan dropped by 30% while on the other hand the Afghanistan trade through Iran increased for 15-20% to 37-40% during the same period (Financial Tribune, 2018).Therefore the development of Chabahar Port helps India not only in overcome her energy and market access problems, but at the same time it helps India to over security and isolation issues as well.

2.2. Investment

The third important aspect that is going to be playing a crucial role in strengthening and expanding the relations between the two countries is the investment sector. There are number of areas which would be

favourable for yielding better payoff for both the countries. On the part of Iran, for years Iran has been in the process of reducing dependence of her economy on oil sector by diversifying it to other areas. That has pay-out well for Iran particularly during the back broking economic sanctions. The World Bank interprets it as:

> *"The slump in oil price has hurt the Iranian economy but less than other oil producers in the region. The reason is that compared to others oil producers, the Iranian economy is more diversified, and therefore less dependent on oil revenues, oil accounts for about 30% of government revenues"* (The World Bank, 2018).

As per the latest report published by the Iranian Customs Administration and Trade Promotion Organization the Iranian non-oil export has been continuously on increasing trend. From financial year 2007-08 the non-oil export has increased from USD 15 billion to near about USD 44 billion in the 2017-18 financial year. During the last financial year it has experienced 3.58% increase in total growth rate. The list of non-oil importing countries of Iran is dominated by China, is at the top of the list and is followed by UAE, Iraq, Turkey, South Korea and India is at the sixth place. The export products are dominated by petrochemical, steel, non-ally Iron, agricultural products, food products, and automobiles as well as pharmaceutical items etc (Financial Tribune, 2017). There are other areas particularly oil and gas, mining, industry, infrastructure development, health, agriculture, and tourism, etc that definitely will play a very important role in bringing in the foreign investors. Further Iran is having almost all the qualities which are required and very much favourable for the foreign investor. With its strategic geographical location Iran can acts as a base for out reaching the other regions and countries. With its 79.9 million populations Iran is at the 17th in world and second largest in the Middle Eastern region. Both with its geographical location as well as large population Iran not only ensures the highest consumption capability and availability of large manpower but also can open the vast consumption market in other regions. Further the presence of large amount of energy resources, Iran assures the en-

ergy security and the abundance of other natural resources assures the availability of raw materials as well (Invest in Iran, 2018). In oil and gas proven reserves, Iran occupies the fourth and second place respectively the world. The 6th five year plan of Iran has projected to touch the 4.5 million barrels, and 9, 50,000 barrels daily production of oil and gas respectively. In mining sector, Iran with 7% of world's mineral resources is placed one of the top ten countries and is first in Middle East. The mineral resources of Iran are dominated by zinc, iron, lead, coal, copper, uranium, and chromate and manganese minerals. The 6th five year development plan of Iran has set the target of attracting more than 15 billion USD foreign investments in this sector. In case of industry sector Iran has planned to increase the petrochemical production to 100 mn tons per year which is 50.7 mn tons in year 2017 and has intended to increase the steel production from current 23 million tons to 40.3 million tons by 2025. In automobile area, Iran also trying to diversify and expand it by signing contracts with major car companies. In development of its infrastructure, Iran has planned to establish an airport city comprising of 1,500 hectare free trade zones and 2500 hectare special economic zone. With the framework of 6th five year Iran has also plans to increase its electricity generation to more than 100,000 MW. In the health sector Iran is in needs of additional 115,000 new beds within five years that is casting 15 billion USD. The pharmaceutical market valued by BMI research at $1.9 billion in 2015 is expected to grow at annual compound growth rate of 6%. In sector of tourism Iran in her twenty year vision plan is hoping to attract 20 million tourists per year by 2025 and has to build 300 four and five star hotels with cooperation of private sector and in 6th five year development plan Iran aims to attract between 500,000 to 600,000 medical tourists each year. In the 6th five year development plan Iran plans to increase the agricultural production, like the production of wheat is to be increased from 10.576 in 2017 to 14,500 tonnes by the 2021, barley from 2,955 to 3,588, maize from 1,659 to 3,000, forage corn from 9,803 to 11.154 sugar cane from 9,803 to 7,500 tonnes etc during the period. Further Iran plans to increase the investment in agriculture, infrastructure and correction of

business environment, increasing the agro-production, processing and decreasing the wastage during cultivation, production, and processing. It also requires investment in modernising and upgrading the cultivation process, transportation facilities and reducing the production cost as well (Invest in Iran, 2018).

Therefore looking at these things it is clear that Iran provides a vast opportunities and with respect to the India and Iran cooperation in investment sector both the countries from time to time have highlighted the importance of cooperation in these areas. And even both the countries have signed many MOUs and agreements for building roads, railway line, and have established various working groups and committees for working out the frame work and areas of their mutual cooperation. During the recent two day (15-17 February 2018) visit of Iranian President to India both the countries signed MoUs in fields of Traditional System of Medicine, cooperation in the field of agriculture and allied sectors, and cooperation in health and medicine as well (Ministry of Eternal Affairs, 2018). For India, Iran not only provides the vast untapped marked for its goods and services but also avails the accessibility to the markets of other countries and regions particularly of Central Asian and Persian Gulf. Therefore taking into consideration the objective of India to play a role of a major power at global level the cooperation with Iran provides the best opportunity. As Iran has the capacity not only to provide a solution to her domestic and regional challenges with its large amount of energy resources, vast availability of untapped market for goods and services, and by providing an access rout to the strategically important Afghanistan and Central Asian countries. But through the development of Chabahar port Iran makes India able to challenge the China-Pakistan nexus on CPEC front. While on the global level, Iran has already supported India for permanent membership in UNSC and in return India has supported Iran for her membership in WTO. Therefore on their bilateral level the stage is set for opening a new chapter in their mutual cooperation as Indian Prime described Iran as India's "Golden Gateway to Central Asia."

3. Indian Interests in Iran and the US

For India, Iran has been playing a very crucial role and is one of the top three oil exporting countries. Shifting the oil import from the country like Iran in short span is quite shaky. Also in importing oil from Iran, India is getting many other benefits like 60 days credit period, which Iran even may extend to 90 days, fright discount of 100 percent, shipping insurance that Iran is providing for overcoming the insurance problems faced by the Indian oil companies after refusal of the United India Insurance for providing insurance cover to the shipments (Nichols, 2018). As per reports Iran may also offered India oil on lower price in comparison to the international market rates in case India continues with its oil import from Iran (The Times of India, 2018).In shifting the oil import from Iran to other countries India is likely not only to lose these benefits but also the price rise result consumption of a larger share of her economy by oil purchasing. On the regional front India is facing the isolation and encirclement by Chinese Belt and Road project. China in collaboration with Pakistan not only building a bloc on its northern border but also has started encircling India on its eastern and southern border by strengthening defence and economic relations with countries Nepal, Bhutan, and Maldives as well as with Sri-Lanka. In past these countries were very friendly with India. But from the past few years the relations with the countries particularly with Nepal, Bhutan and Maldives are in strain and they are going closer to China. In such scenario, Iran in addition to providing India a way out from the encirclement by the development and interconnecting of the Chabahar Port with North South Transport corridor, offers an access route to the strategically important Afghanistan. Therefore Iran provides India an ample scope and opportunities not only for energy, trade and economic cooperation but also enables India to gain strategic advantage over the arch rivals Pakistan and China both economically and politically in Afghanistan and Iran.

On the global level India is working on the objective of building a statue of a big power in the global politics and on that front it tries to develop strategic cooperation with the big powers particularly with

the US. The India's relations with US are on the crucial stage after the dispute over tariff and India is eager to transform it into a "global strategic partnership." After joining the Missile Technology Control Regime (MTCR), India is in search of a permanent membership in UNSC, and the Nuclear Supplier Group (NSG) as well as restricting increasing influence of China and Pakistan. While on the defence they are working very closely, the defence and arms trade between India and US has shown a rapid increase, from 1999 to 2003 the arms imports of India from US was only 0.2 percent of its total trade, in between 2004-2008 it increased to 1.9 percent and from 2009 to 2013 it constituted of 7.4 percent (Mishra, 2018). Presently India-US relations are broad based and multi-sectoral, covering defence and security, civil nuclear energy, space technology, trade and investment, mutual-production and mutual-development of defence items under the defence technology and trade initiative (DTTI), so on and so forth. In 2016 US has recognised India as a "Major Defence Partner" and committed for technology sharing with India (Ministry of External Affairs of Indian Government). At the end of the Obama's term the arms trade rose to 14 billion and is increasing with each passing year.

4. India, Iran and the US Triangle

The triangle of India, Iran and US has made the choices for the Indian policy makers quite challenging from the recent past and particularly after the re-imposition of sanctions on Iran on the 07 August 2018. On the US withdrawal from the Joint Comprehensive Plan of Action (JCPOA) India returned to its traditional stand and called for the diplomacy and dialogue for resolving the nuclear issue (Bhattacherjee, 2018). Initially Indian External Affairs Minister Mrs. Sushma Swaraj before her meeting with the Iranian foreign Minister Javad Zarif that India will not accept sanctions imposed by the United States, replying to questions of journalists she said that:

> *"We recognise UN sanctions and not country specific sanctions. We did not follow US sanctions on previous occasions either."*

The statement issued after the meeting of the two foreign ministers mentions that:

> *"EAM conveyed that all parties to the (JCPOA) Agreement should engage constructively for peaceful resolution of the issues that have arisen with respect to the Agreement" (*Haidar, 2018*)*

However the hardening stand of the Trump Administration and subsequently the recent visit of the US representative to UN Nikki Haley to India in June conveyed the message very clearly that:

> *"All of us have to rethink who we choose to do business with. I think, as a friend, India should also decide is this a country they want to continue doing business with….I think for the future of India, future of resources, we would encourage them to re-think their relationship with Iran"(*The Times of India, 2018).

On the development of Chabahar Port she said that:

> *"We know the port has to happen and the US is going to work with India to do that…we know that they are being a great partner with US in Afghanistan and really trying to assist the US and trying to do more"* (Verma, 2018).

While Iranian Deputy Ambassador and Charge d'Affaires Massoud Rezvanian Rahaghi on the other hand warned India, that not only the special privileges like 60 days credit for purchase, freight discount would end but the connectivity related interests with Iran would also defer if India stopped importing Iranian oil.

5. Indian Stand and Options

The imposition of first round of sanctions on Iran, targeting the acquiring or buying of US dollars by Iran, trade in gold and other precious metals, import and export of graphite, aluminium, steel, coal, software for integrating industrial process, automotive sector, purchase or sale of Iranian rials and buying or facilitating the issuance of Iranian sov-

ereign debt, cause little problem to India. For making future strategy, earlier India's oil minister called a meeting with the refiners dealing with Iranian oil and urged them to prepare for a drastic reduction or zero imports of Iranian oil from November and search for the alternatives to Iranian oil. Under the US pressure and avoiding the US sanctions, the Indian Reliance Industries Ltd, the operator of the world's biggest refining complex has already halted importing the Iranian oil (The Indian Express, 2018). The State Bank of India has also conveyed Indian refiners and government that its inability to handle oil payments to Iran from November onwards (Reuters, 2018).On the official level the Indian government has maintained the policy of wait and watch. It has kept its eyes on the position and stand to be taken by the EU countries (The Indian Express, 2018).Previously Indian Prime Minister has talked with the Russian President and German Chancellor Angela Merkel and recently India also has sent a delegation to Europe to access options of continuing trade with Iran. The delegation was comprised of officials from the ministry of petroleum, external affairs and ministry of finance which interacted with the government officials, bankers and other sources having knowledge of the development. India is looking at the EU as an option for continuing its energy trade with Iran and currently is making its oil payments to Iran in euros through Germany's EIH bank. In case EU joins the US, then it will be a problem for India in continuing its business with Iran. In response to the query the Oil Minister of India refused to talk about the impact of the sanctions on India's trade with Iran by saying that it too early to say anything (Business Standard, 2018).After failing to get any weaver from the US as reports suggest, India is keeping in consideration its past experience in dealing with Iran during the sanctions period under the previous US administrations, is looking at other options as well. Previously India used different alternative mechanism for making oil payments like the rupee-rial, the Asian Clearing Union (ACU), Turkish Halkbank, and UCO Bank which is not having any property in US as well as the rupees as the mode of payment to Iran. While Iran on the other hand has been also considering trade in recently inaugurated Chinese Yuan-denomi-

nated crude oil future on the Shanghai International Energy Exchange (Ray Dadwal, 2018). Both the countries are also in constant touch and are making deliberations about the future course of action for overcoming the future issues emerging out of the imposition of the US sanctions on the Iran. In July 2018 the foreign secretaries of both the countries meet in New Delhi and agree to explore the means for continuing the oil trade and discussed new banking channels. The statement issued from the Ministry of Foreign Ministry of India says that:

> *"Views were also exchanged on regional and international issues of mutual interest, including the efforts being made by various parties to address issues that have arisen over the Joint Comprehensive Plan of Action"* (The Economic Times, 2018).

Conclusion

The India's interests at the stack in the Iran and the US are much higher as compared to the previous times. On the internal front India is energy deficit country and counted as one the largest energy-consuming countries. On the external front the issues of overcoming the Chinese encirclement, China-Pakistan nexus and enhancing its global stature are the top priorities of the country. In dealing with the current situation that is the re-imposition of US sanctions on Iran and making the adjustments accordingly is not new to India. India is familiar to such situation and has dealt and adjusted herself with even harder situations when all countries favoured the US. In current situation there is a bloc that is European countries, Russia and China which have opposed the Trumps withdrawal for the Joint Comprehensive Plan of Action and subsequently the re-imposition of sanctions on Iran. Taking these into consideration India officially has to maintain the policy of wait and watch, and unofficially has to search out the ways and means to deal with the situations in both cases that is (a) shifting the imports from Iran to other countries (b) how to convince the US and what means would be adopted for making the oil payments to Iran in case of continuing business with the Iran.

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