SWOT Analysis of the Turkish Economy in the Context of Innovation from the Perspective of the Business World, Academics and Government Executives: A Comparative Analysis of Middle-Income Countries in Terms of Their Innovation Capacities

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Goal and Scope

A groundbreaking brainstorming workshop with a theme of the "Innovative Capacity of Turkey" was conducted in 2013 during a preparatory workshop for the Second World Conference on Technology, Innovation, and Entrepreneurship which is due to be held in 2017. The invaluable opinions of roughly 200 reputable business people, academics and government executives, who registered without any kind of

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pre-assessment, were collected and evaluated in accordance with SWOT analysis, whereby all of the collated ideas were identified under the SWOT categories of Opportunities, Threats, Strengths, and Weaknesses.

In the workshop, as the Young Executives and Businessmen Association (GİAD) stands to be one of the most prominent participants, the members of aforesaid association's governing board and general meeting have become the delegate-at-large of the brainstorming. The other delegates of the brainstorming included speechmakers and faculty members from both within Turkey and abroad. In addition, there were also outstanding foreign faculty members and private sector executives from both the European Union (EU) and USA. Government executives and the representatives of non-governmental organisations (NGOs) also participated in the brainstorming.

In brief, the scope of brainstorming is focused on a SWOT analysis of the Turkish economy in the context of national innovative capacity. Most importantly, the analysis aims to extract and ascertain the intrinsic innovative capacity of Turkey in the view of the business world, NGOs, government executives and academics.

In this chapter, we also make comparison between middle-income countries, of which Turkey is one, because significant growth has occurred in these middle-income countries as well as countries of higher middle income. Factors of relatively cheap labour and raw materials will to growth, entrepreneurship induced rising economies to become phenomenon.

The average growth that has occurred in China, Brazil, India, Hong Kong, Iran, Indonesia, Russia and Turkey has been much greater than that of developed countries. China in particular has become a locomotive in the global economy. However, in recent years because of structural reforms that have not been undertaken in the areas of technology and innovation, abolishment of quantitative improvement paved the way for a loss of acceleration of growth rates. Interest rates have also risen in the USA and the lingering probability of that rising trend remaining in the future caused hot money and funds to become unavailable due to market panic.

The search for a way out of the middle-income trap via new technology and innovation policies is needed in middle-income countries

generally and rising economies particularly through implementation of structural reforms on secondary education, higher education, financial discipline and the judicial system. To this end, in this chapter we analyse the innovation policies in countries including Turkey and a comparison is made between middle-income countries.

In this chapter, we first explain the methodology of the SWOT analysis in Section "Methodology". The outcomes of brainstorming are discussed in detail as Opportunities, Threats, Strengths and Weaknesses in Section "Outcomes of Brainstorming". In Section The Innovation Policies Required in Middle-Income Countries, Rising Economies and Turkeyto Exit the Middle-Income Trap: A TotalAppraisal of Middle-Income Countries, the required innovation policies in middle-income countries are analysed together with rising economies and Turkey's exit from the middle-income trap as a total appraisal of middle-income countries. Finally, Section "Conclusion" concludes the chapter with policy recommendations and practical considerations for future economic causes, consequences of the middle-income trap and remedies for it.

Methodology

The SWOT analysis conducted through brainstorming about the Turkish economy has been chosen as a methodology to assess the "Innovative Capacity of Turkey". The brainstorming process is implemented in two distinct phases. First, the opinions collected through the brainstorming are identified under the categories of Opportunities, Threats, Strengths and Weaknesses. Within these four categories, the opinions are then prioritised. For each of the SWOT items, the first ten opinions are assigned a priority with respect to the weighted arithmetic mean.

Outcomes of Brainstorming

All of the ideas gathered during the brainstorming were compiled and then classified under the SWOT elements of Opportunities, Threats, Strengths and Weaknesses.

Identification of Opportunities and Threats

Given the outcomes of brainstorming, the Opportunities and Threats related to the innovative capacity of Turkey are determined through a SWOT analysis of the Turkish economy as follows.

(i) **Opportunities**

- Embracing a long-term perspective
- Geographical position
- Globalisation
- Turkey is the greatest secular country in the Middle East
- Higher commercialisation rate of scientific research in Turkey
- Turkey's potential to utilise its alternative energy resources
- 1.8 billion people in the Islamic world market
- Turkey's nomination for EU membership
- Lower investment costs in the software field
- Requirement to build a research and development (R&D) centre for foreign investors
- Higher potential in alternative tourism
- Immigration phenomenon in the long run
- Scripts of movies and television series are written in a way to support entrepreneurship.

(ii) **Threats**

- Higher dependency of exports on low-cost labour
- Plans of international pressure groups regarding Turkey
- Ranked 51st in the global competitiveness listing
- Unfair distribution of income
- Immigration phenomenon in the short run
- Inefficient use of social capital
- Decreasing population growth rate
- Current deficit based on energy expenditure
- Disappearing attribute of industry as the driving force of employment
- Shortage of executives and human resources who can fluently speak foreign languages

- Shortage of world brands emerging from Turkey
- Shortage of investments oriented to recycling
- Lack of social mobility with a vision
- Lack of progress in EU relations because of EU
- Failure of Turkish universities to open international campuses
- Lack of confidence, and incompetency of bureaucracy
- Over-investments in defence industry
- Globalisation
- Terror
- Media manipulation
- China threat
- Brain drain
- Suggestions from America, Europe and Russia about the technological development of Turkey
- Suppressed exports because of high domestic demand.

Identification of Strengths and Weaknesses

The brainstorming delegation has identified the Strengths and Weaknesses of Turkey's entrepreneurship centric innovative capacity as follows:

(i) **Strengths**

- An educated, young population
- A young population committed to globalisation
- Human resources capacity employed at an international level
- Experience gained in production and use of technology
- Pluralist cultural structure
- Young population with technological skills
- Higher demand for innovative products
- Digital agriculture
- Average growth rate of 4%
- Higher entrepreneurial skills
- Ingenuity to manage crises
- Education system and university campuses opened abroad

- Government grants for R&D expenditure
- Media sector
- Highly dynamic society
- Legendary successes of small- to medium-sized enterprises (SMEs)
- Conglomerates
- Guiding ability of baby boomers for next generations
- Being a part of the European territory of research
- Prosperity of Turkey's hinterland
- High rate of higher education
- Threats of key industries on subsidiary industries
- Turkish Air Lines globalising effect on Turkish entrepreneurs
- Agricultural sector
- Wetlands
- Developing heavy industry because of the urgent needs of armed forces.

(ii) **Weaknesses**

- Oligarchic structure of Turkish bureaucracy
- Lack of cooperation between universities and industry
- Shortage of collaboration
- Lack of reforms in the education system
- High rate of informally operating SMEs
- Concerns about the future
- Insufficient legal infrastructure
- Insufficient level of R&D expenditure
- Lower quality level of education
- Lack of patience
- Lack of awareness to recognise the difference between generating an idea and generating an innovative idea
- Issues related to international quality standards
- Lack of technology production, and insufficient private sector support for R&D projects
- Shortage of qualified graduates
- Shortage of transparency
- Over-funded construction sector
- Lack of a long-term view

- Insufficient foreign-language teaching
- Failure to follow-up incentives
- Failure of universities' efforts to be specialised as education and research universities
- Failure in the coordination of universities, industry and NGOs
- Aptitude tests of undergraduates are performed at the beginning of the educational process
- Failure of SMEs to adapt to Industry 4.0
- Lack of sensitivity to culture and art
- Desire to make money instead of gain success
- Unemployment spread among young population
- Lack of coordination
- Insufficient personnel with a graduate diploma in industry
- Failure to use research allowances
- Lack of creative education
- Lack of R&D funds management
- Insufficient number of techno-entrepreneurs
- Lack of self-confidence
- Lack of project preparation
- Agriculture
- Clustering in agriculture
- Diminishing interest in fundamental sciences
- Lack of strategic plan as well as vision
- Conflicting R&D activities with the realities of Turkey in universities
- Aging population
- Conflict between generations X and Y
- Problems in financial structure
- Failure to protect patent rights
- Highly strict regulations on logistics, energy and health
- Failure of Turkish entrepreneurs to introduce themselves at an international level
- Absence of infrastructure for the development of entrepreneurship culture
- Lack of socio park model
- Ranked 58th in the global innovativeness listing

- Insufficient rate of female labour force participation
- Absence of educational infrastructure for wunderkinds
- Insufficient number of executives and personnel who can fluently speak foreign languages
- Lack of angel investors
- Absence of entrepreneurship in education
- The problem of commercialisation experienced in TÜBİTAK-supported innovations
- Abundant ideas, but scarce analyses
- Foundation of universities focused only R&D
- R&D expenditures cut as a first measure when budgets are cut
- Government is the biggest employer
- Insufficient ethical values
- Failure to reconstruct KOSGEB (the Small and Medium Size Enterprises Development Organization)
- Lack of lifelong learning motivation
- Lower level of financial literacy
- Reestablishment of research universities needed in mega cities
- Foreigner mania experienced in service procurement
- Lack of R&D projects in public–private sector cooperation
- Failure to differentiate between innovation and product development
- Failure of second generations in family firms
- Lack of examples of branded Turkish entrepreneurs in text books
- Lack of aggressive competition style in the behaviour of Turkish business people
- Lower level of utilisation of publications
- Scarcity of woman executives
- Tendency to large scale in entrepreneurship
- Lack of environmental entrepreneurship.

Prioritisation of Opportunities and Threats

The Opportunities and Threats determined during the innovative capacity-centric brainstorming were presented to the participants in a

survey form with a space denoting a prioritisation scale—from 1 to 5—left blank beside each idea. The scale used to rate the ideas expressed in the SWOT analysis is as follows: (1) least important idea; (2) less important idea; (3) important idea; (4) very important idea; and (5) most important idea.

Ideas are then prioritised by calculating their weighted averages with respect to the frequencies and significance levels of opinions. According to the outcomes of survey forms filled in by participants, the top ten Opportunities and Threats are as follows.

(i) **Priority Opportunities**

1. Embracing a long-term perspective
2. Geographical position
3. Globalisation
4. Turkey is the biggest secular country in Middle East
5. Commercialisation rate of scientific breakthroughs in Turkey
6. Turkey's potential to utilise its alternative energy resources
7. 1.8 billion people in the Islamic world market
8. Turkey's nomination to EU membership
9. Lower investment costs in the software field
10. Requirement for foreign investors to build an R&D centre

(ii) **Priority Threats**

1. Higher dependency of export on low-cost labour
2. Plans of international pressure groups regarding Turkey
3. Ranking 51st in the global competitiveness listing
4. Unfair distribution of income
5. Immigration phenomenon in the short run
6. Lack of social mobility with a vision
7. Inefficient use of social capital
8. Diminishing population growth rate
9. Current deficit based on energy expenditure
10. Terror

Among the primary threats, lower-technology export products are a problem for economic development.

Prioritisation of Strengths and Weaknesses

As for Opportunities and Threats, the Strengths and Weaknesses determined during the innovative capacity-centric brainstorming were presented to the participants in a survey form using the same rating scale. Then ideas are prioritised by calculating their weighted averages with respect to the frequencies and significance levels of ideas. According to the outcomes of survey forms filled in by participants, the top ten Strengths and Weaknesses are as follows.

(i) **Priority Strengths**

1. Educated, young population
2. Young population adaptable to globalism
3. Human resources capacity employed at an international level
4. Experience gained in production and use of technology
5. Pluralistic cultural structure
6. Young population with technological skills
7. Higher demand for innovative products
8. Digital agriculture
9. Average growth rate of 4%
10. Higher entrepreneurial skills

Having an educated, young population clearly comes to the front as an important advantage as well as having a young population in itself. The average growth rate of 3% prevailing for the last 15 years may be explained with a Demographic Window of Opportunity.

(ii) **Priority Weaknesses**

1. Lack of long-term view
2. Oligarchic structure of Turkish bureaucracy
3. Lack of cooperation between universities and industry
4. Lack of collaboration
5. Lack of reforms in the education system
6. High rate of informally operating SMEs
7. Concerns about the future

8. Insufficient legal infrastructure
9. Insufficient level of R&D expenditures in order to turn inventions into patents
10. Lower-quality level of education

The Innovation Policies Required in Middle-Income Countries, Rising Economies and Turkey to Exit the Middle-Income Trap: A Total Appraisal of Middle-Income Countries

As stated at the High-Level Conference of Middle Income Countries (2013), middle-income countries produce 30% of the world's economic value-added, but 70% of the world population lives in these countries.

Before we go into detail, let us explain the income classification system of the World Bank for the 2017 financial year using the Atlas Method according to per capita gross national income (GNI) (World Bank 2017):

- *Definition of lower-income countries*: those countries with lower than $1025 per capita GNI;
- *Definition of middle-income countries*: those countries with between $1026 and $4035 per capita GNI;
- *Definition of higher middle-income countries*: those countries with between $4036 and $12,475 per capita GNI;
- *Definition of higher-income countries*: those countries with more than $12,475 per capita GNI.

In 2010, according to World Bank data, 40 countries out of 124 were categorised as low income, 52 countries as middle income and 32 as high income.

In their working paper analysing the middle-income trap, Felipe et al. (2012) classified income groups using per capita gross domestic product (GDP) according to purchasing power parity (PPP), as follows:

- *Definition of low-income countries*: those countries with lower than $2000 per capita GDP;
- *Definition of middle-income countries*: those countries with between $2000 and $7250 per capita GDP;
- *Definition of higher middle-income countries*: those countries with between $7250 and $11,750 per capita GDP;
- *Definition of higher-income countries*: those countries with more than $11,750 per capita GDP.

There are different opinions in the literature regarding the concept of middle income and how long it takes for a country to be classified as stuck in the middle-income trap. Spence (2011) in his analysis—though not using the concept of middle income as such—asserted that periods during which a country's GNP falls between $5000 and $10,000 should be taken as the basis for determination of the transition to middle income.

Over the past 20 years, middle-income countries have achieved significant growth rates. Figure 1 shows the per capita GDP and growth rates of rising economies.

Figure 1 shows the distribution of income groups between world countries over a 60-year period from 1950 to 2010. Beginning from 1950, the share of lower-income countries gradually decreased in the income groups of world countries; 37 countries stayed in the low-income trap between 1950 and 2010 (Felipe et al. 2012).

Among the countries that were in the lower middle-income group in 1950 and then moved up to the upper middle-income group, China transitioned from low-income group to the lower middle-income group in 1992, and from the lower middle-income group to the upper middle-income group in 2009.

The Chinese economy going into an explicit slowdown in recent years shows a tendency towards the middle-income trap. The comparative advantage of the Chinese economy in labour-intensive production sectors has weakened because of an aging population and rising labour force costs. Though China continues to improve its competitive capacity in information and technology-intense industry sectors, it is debated

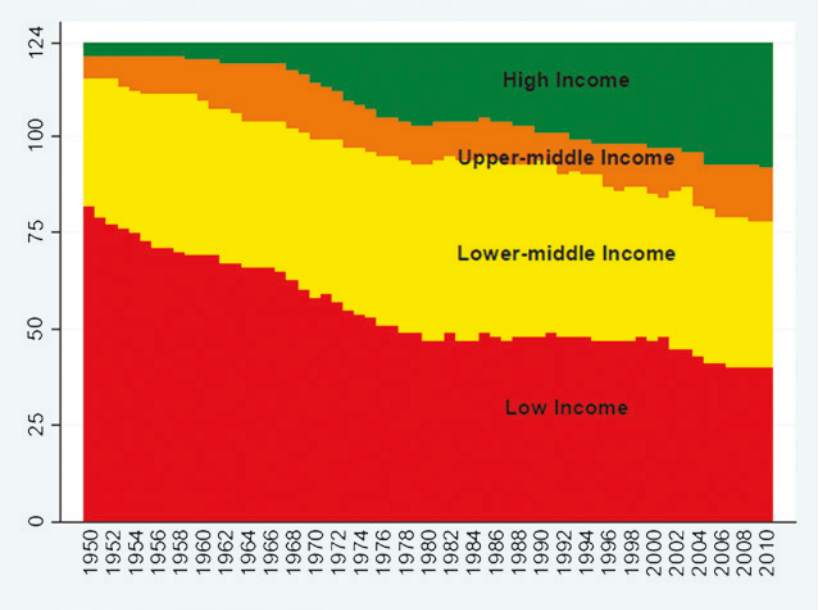

Fig. 1 Distribution of income groups between world countries (1950–2010) (*Source* Felipe et al. 2012)

whether China is one of the countries likely to fall into the middle-income trap in the near future (Agenor 2016).

Turkey, on the other hand, transitioned from the low-income group to the lower middle-income group for the first time in 1953, but in 1954 moved back again to the low-income group. In 1955, Turkey transitioned once again to the lower middle-income group and in 2005 moved up to the upper middle-income group.

According to Agenor (2016), among the reasons for a country's economy falling into the middle-income trap are decreasing returns to physical capital, cheap labour, exhaustion of imitated production, deficiencies in the quality of human capital, distorted incentives, misallocation of talents, insufficient access to advanced infrastructure, problems acquire finance resources and income inequality.

Structural transformations to escape the middle-income trap are also listed, as follows: improving the quality of education, subsidies for

innovation activities in the economy, protection of property rights, supporting advanced infrastructure investments and clearing up hindrances to financial resources (Agenor 2016).

Table 1 shows the years in which countries transitioned from the low-income group to the middle-income group and from the lower middle-income group to the upper-income group successively, and their relative growth rates within the periods of transition.

Quantitative improvement, stagnation in developed and high-income countries, historical stagnation of Japan and high interest rates in middle-income countries also had an effect on these growth rates.

In middle-income countries and rising economies, the desire for a high level of growth, reformed entrepreneurship culture, development of the private sector and rise in exports cannot be ignored. However, it is unfortunately not possible to keep up the same rate and quality as in the rise from a low-income to middle-income level.

As is clear from Table 1, it is possible to move from low income to middle income with high motivation and hot money, but it is not possible to move from middle income to high income only with financial measures and motivation. Within this framework, in middle-income countries, structural reforms, and innovative entrepreneurship Innovative Entrepreneurship in general, and a new growth and development story based on innovativeness and technology improvement in particular are wanted.

Reinforcement of technical training in secondary education and carrying this on with applied practice in universities are required solutions. Transition from entrepreneurship to qualified entrepreneurship also needs to be bolstered.

In particular, the export of high-tech products is to be induced. For example, export rates of high-tech production economies, particularly in Turkey and generally in rising economies, are between 1 and 5%. Mostly, middle–high and low-technology products are exported. The export rates of high-tech products in general should be a minimum of 10–20%.

R&D incentives should be worked on rather than investment incentives, and innovation and technology productions should be promoted. In terms of cost and benefit analysis or the risk–reward nexus described

Table 1 Distribution of income groups between countries (1950–2010)

Country	Region	Transition year from low-income group to lower middle-income group	Transition year from lower middle-income group to upper middle-income group	Number of years spent in lower middle-income group	Growth rate of GDP in the transition period from lower middle-income group to upper middle-income group
China	Asia	1992	2009	17	7.5
Malaysia	Asia	1969	1996	27	5.1
Republic of Korea	Asia	1969	1988	19	7.2
Taipei, China	Asia	1967	1986	19	7.0
Thailand	Asia	1976	2004	28	4.7
Bulgaria	Europe	1953	2006	53	2.5
Turkey	Europe	1955	2005	50	2.6
Costa Rica	Latin America	1952	2006	54	2.4
Oman	Middle East	1968	2001	33	2.7

Source Felipe et al. (2012)
GDP gross domestic product

by Lazonick and Mazzucato (2012, pp. 22–23), policy implications suggest the following:

- Improve resource allocation by curtailing or totally banning manipulation and destabilising speculation on stock markets so that resources are channelled to those economic actors who seek risk for innovative entrepreneurship.
- Levying low tax rates encourages innovative spirit and promote economic development.
- Rewarding the division of labour in innovative production helps entrepreneurs attain competitive advantage and prevent unfair competition.
- Distinguishing between productive and unproductive risk makes innovative entrepreneurs' investments profitable and their ventures become successful.
- By arrangement, the state keeps a 'golden share' of the returns on patents and copyrights after disposition of the risk.

The intellectual economy, in which information technologies, arts, higher education and the qualified service industry take part, should be improved. The same 'recipe' is valid for all middle-income countries. This point is heavily stressed in the SWOT analysis of the innovative capacity of Turkey conducted involving managers and academics. Structural reforms in general and innovative reforms in particular are a part of all government programmes of rising economies, though they are not appropriately applied.

Conclusion

The SWOT analysis based on a brainstorming conducted amongst representatives of NGOs, the business world and the academic sphere reveals numerous intriguing results. Sometimes, objective outcomes are observed, while at other times there are some total contradictions. For instance, a long-term view is prioritised as an opportunity, while also being prioritised as a threat and a weakness.

Geographical position is undeniably considered as an opportunity by all segments. In addition, the potential of alternative energy resources is also evaluated as an opportunity. In the same manner, both the potential of alternative tourism and the requirement for foreign investors to build an R&D centre are also seen as an opportunity.

Despite the opportunities identified, many factors such as terror, exportation of cost-efficient products, immigration and unfair distribution of income are prioritised and then defined as a threat.

Among the strengths are a well-educated young population, an ambitious tendency and adequate capacity to integrate with the global world, as well as a qualified labour force, meaningful sensitivity to information technologies, higher entrepreneurship skills and authenticated experience with crises; while the prominent weaknesses are identified as a lack of reforms in the education system, suspension of innovative reforms, oligarchic bureaucracy and the black economy.

In conclusion, there is no need for despair regarding having an innovative and intellectual economy as long as shrewd answers are devised for a wide range of fundamental issues including innovative entrepreneurship and stewardship, and reform steps mandatory for an intellectual economy. However, having an economy with innovative capabilities actually entails a 50- to 100-year strategic plan and a vision designed for beyond 2023.

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