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An experiment of institutional change in the ecosystem of entrepreneurship: easing sanctions against Iran

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Abstract: The ecosystem of entrepreneurship includes institutions, notably the market with its arrangements, such as extent of the market and availability of opportunities. In Iran, extent and opportunities were limited by severe sanctions until 2015, when sanctions were eased by what is known as the nuclear agreement. This institutional change invites the hypothesis that easing sanctions entailed an expansion of entrepreneurship. This hypothesis is tested as a natural experiment, comparing entrepreneurial pursuits before and after the agreement, using the annual survey of adults and entrepreneurs in Iran conducted by the Global Entrepreneurship Monitor, complemented by in-depth interviews. Pre- and post-survey comparisons show increases in people’s opportunity perceptions, intention to become entrepreneurs, and entry into entrepreneurship. Entrepreneurs became increasingly pulled by opportunity and decreasingly pushed by necessity, increasingly export-oriented, and expectations for growth of businesses increased. These findings contribute to understanding how institutional change in the ecosystem of entrepreneurship can change entrepreneurial pursuits.

Keywords: entrepreneurship; opportunity; growth; ecosystem; experiment; institutional change; sanctions; Iran.
E. Kalhor, S. Ashourizadeh and T. Schøtt


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This paper is a revised and expanded version of a paper entitled [title] presented at [name, location and date of conference].

1 Introduction

People may pursue commercial opportunities by starting and running a business. They perceive opportunities as more or less promising, and opportunities may pull them into entrepreneurial careers. Some are also pushed to become entrepreneurs by the dire necessity to make a living and seeing no better possibility for work than starting their own business. Entrepreneurs have ambitions for their endeavours, notably they may pursue innovation, exporting and growth of their business.
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People’s pursuits are part of the ecosystem of entrepreneurship. The other part of the ecosystem is the institutions in which the pursuits are embedded, the institutions that regulate, channel, enable and constrain people’s endeavours (Scott, 2014; Jimenez et al., 2017). Institutions comprise the formal regulatory arrangements such as laws of ownership and markets, and availability of and access to resources such as financing. Institutions include culture such as the meaning and value attached to entrepreneurial endeavours and the norms of appropriate behaviour. Institutions also comprise the beliefs that are taken for granted and that guide people’s actions.

Institutions in the ecosystem change. Institutional change triggers change in the activity, as we expect and as studies have revealed (Bouncken et al., 2014; Bruche, 2012). The change in activity may be profound or imperceptible, and it may be rapid or gradual and slow. The general question is: How is institutional change bringing changes in entrepreneurial pursuits? The institutional changes that consisted in transitions from communism to capitalism around the world were profound – sometimes rapid, sometimes slow as in China – and led to a surge in private entrepreneurial venturing (Smallbone and Welte, 2012). Another example of institutional change was the global financial crisis in 2008, which led to a decline in entrepreneurial activity (Bosma et al., 2012; Klapper et al., 2011).

In Iran, an institutional change occurred on the 14th of July 2015. Iran signed an international agreement on easing the sanctions that had eroded its economy, and its people celebrated euphorically with renewed faith in the future (New Yorker, 2015; Vocative, 2015). This institutional change seems a rare occasion of rapid and profound institutional change. Did this institutional change trigger change in entrepreneurship?

This is a natural experiment. There was one condition – sanctions – before introduction of the experimental condition – the agreement to ease sanctions – and after that there was a new condition – the easing of sanctions. Effects of the experiment should be discernible through before-and-after comparisons.

These considerations frame our research question: In Iran, how did the institutional change with the 2015 agreement change entrepreneurial pursuits?

The participants in the experiment are the people, and especially the entrepreneurs, in Iran. They have been surveyed by random sampling for the Global Entrepreneurship Monitor annually from 2008 to 2017, which enables before-and-after comparisons. The survey is complemented by in-depth interviews with entrepreneurs. The findings are amenable to generalisation to the population of adults and the population of entrepreneurs in Iran. It seems feasible to also generalise to conditions and situations of less strict sanctions.

The contributions number at least five. Firstly, the study contributes to the conceptualisation of the ecosystem of entrepreneurship by including the institutional condition of sanctions, or boundary of the market, as an element of the ecosystem. Secondly, the study contributes to theorising by applying the so-called Flexible Accelerator Model (Blejer and Khan, 1984) to account for the impact of sanctions on entrepreneurial pursuits. Thirdly, the study contributes to theorising about the ecosystem by corroborating several hypotheses about the effects of a change in the institutional condition, namely easing the sanctions, or expanding the boundary of the market, upon the output of the ecosystem, namely entrepreneurial activity; and, more generally, our understanding of the consequences of institutional change for society (Andersen, 2008). Fourthly, the study contributes to methodology, demonstrating that experiments with institutional conditions are feasible in research on entrepreneurship. Finally, the study
can be considered an evaluation of the detrimental impact of sanctions, and is thereby of academic value for scholarship on sanctions and of political strategic interest both to the Iranian targets of sanctions and to the Western powers that imposed the sanctions.

In the following sections, we first adopt a framework from previous studies, the Flexible Accelerator Model (Blejer and Khan, 1984; Misati and Nyamongo, 2011; Peltonen et al., 2012), in order to build hypotheses regarding the impact of institutional change, specifically easing sanctions, upon entrepreneurial activities. Then we present the research design, report results and discuss conclusions.

2 Theoretical background and hypotheses

The following first considers the market conditions under sanctions as a basis for then building hypotheses about people’s interest in becoming entrepreneurs, about entry pulled by opportunity versus necessity and about entrepreneurs’ businesses.

2.1 Market conditions under sanctions

The Flexible Accelerator Model is a well-researched class of theoretical models which provides a comprehensive insight into private investment behaviour (Blejer and Khan, 1984; Phetsavong and Ichihashi, 2012; Twine et al., 2015). Blejer and Khan (1984) adapted this model to incorporate the specific institutional and structural characteristics of a developing economy. The model states that the desired stock of capital is proportional to expected output (Blejer and Khan, 1984; Phetsavong and Ichihashi, 2012; Twine et al., 2015). They have modelled how private investment is dependent on three factors: availability of financing, level of public investment and stage of the cycle. The model justifies a reduction in private investment and entrepreneurial activities and their motivations during the sanctions in Iran by representing a decrease in the availability of financing and in the level of public investment during the sanction crisis. Reduction in the level of public investment does not provide higher opportunities for private sectors in Iran but a decrease in government support for private investors and entrepreneurship. Imposition of sanctions on Iran increased the costs of businesses and restricted the financial resources of the government. Lack of government financial support and higher business costs in turn results in a reluctance to pursue entrepreneurial and investment behaviour.

The nature of capital markets in developing countries such as Iran leads to constraints on the financing of the private investment sector, which is limited in the use of bank credit, retained profit and foreign borrowing. The main tool of monetary policy in developing countries is the control of total bank credit, since the government can influence the capability of private investors by adjusting the composition of credit between public and private sectors to achieve their desired levels of investment. Therefore, monetary policy including interest and exchange rates can change private capital flows by increasing or decreasing financial resources for the private sector. In addition, public investment financing through taxes and inflation will reduce the resources for private investment and depress entrepreneurship and investment (Blejer and Khan, 1984). The imposition of sanctions as an external conflict leads government monetary policy to change, which in turn influences private sector investment and
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entrepreneurship. Since sanctions affect the economic indicators directly – such as increasing inflation, exchange and interest rates – the level of private investment and entrepreneurship are confronted by some barriers and limitations.

Nevertheless, attempts to absorb a large share of domestic financial resources by the government lead to crowding out of private investment. On the other hand, considering that foreign capital can be affected by exchange rate and interest policy, it may have a negative effect on private investment (Blejer and Khan, 1984; Phetsavong and Ichihashi, 2012; Twine et al., 2015).

The sanctions implied that both imports and exports as a percentage of GDP fell by roughly a third in the decade up to the agreement (World Bank, 2018a, 2018b). The data from 2016 indicate an increase following the 2015 agreement (ibid.).

To develop hypotheses concerning the impact of change in institutions on entrepreneurship, we review some studies evidencing the impact of the global financial crisis, which can also be considered a natural experiment of institutional change in the ecosystem of entrepreneurship. A study by Klapper and Love (2010) of 95 countries investigated the effects of the 2008 global financial crisis on entrepreneurship and new firm creation. The analysis showed that countries experienced a sharp drop in business entry during the financial crisis. The impact is highly dependent on the intensity of the crisis.

Similarly, a study of the relationship between growth and financial dependence revealed that credit crunches cause a slowdown in the private sector (Demirgüç-Kunt and Levine, 2004). Moreover, the results showed that the financial crisis had more negative effects on new business creation in countries with high levels of financial development. Since starting up in the countries with a higher level of financial development is more supported by bank financing, they experience more significant hurdles in entrepreneurship. Furthermore, the countries that were more affected by the financial crisis experienced a sharper decline in new business registration (Klapper and Love, 2010).

In a similar vein, the Global Entrepreneurship Monitor revealed an overall decline in perceived opportunities to start a business in 2008, which was the start of the global financial crisis. In many countries such as Iceland, Chile, Latvia, Ireland and Hungary there were severe declines, between 30 and 50 per cent (Bosma et al., 2009). Even in the world’s otherwise happiest country, Denmark, entrepreneurs considered it increasingly difficult to start, considered opportunities to be fewer and reduced their expectations for growth of their businesses (Schott et al., 2009).

Similarly, to the global financial crisis, sanctions lead to reduced government revenue. When government finance was reduced in Iran, investment in oil and other industries was decreased and this led to economic problems (Garkaz et al., 2012). Accordingly, sanctions as a factor that influences the government sector changed the conditions for private investment and entrepreneurship in several aspects. These aspects include investment opportunities, people’s intentions to run a business, the level of innovation in organisations and exports, leading to recession and a decline in economic development. In such a situation it is considered prudent for policy makers to evaluate how private investment responds to changes in government policy. This evaluation illustrates the influence of government policies on private investment decisions and entrepreneurial actions that can alter the economic growth rate (Blejer and Khan, 1984).
Entrepreneurship and the effects of sanctions

Entrepreneurship is commonly regarded as a complex mechanism for economic growth through investment, innovation, employment and welfare effects in a business environment. This mechanism speeds up fundamental changes through innovative activities (Fereidouni and Masron, 2012). Entrepreneurial activities require stability, economic security and facilities.

With the sanctions imposed against Iran up to 2015, all Iranian commercial transactions with Europe and the USA were banned. Foreign companies were not allowed to deal with Iran. Banking services, money transactions and the central bank in Iran were also under sanctions. Iran’s oil and insurance industry and nuclear technologies were sanctioned (Samore, 2015). Economic sanctions influence entrepreneurial activities by constraining international communication, increasing investment risk, paralysing the bank system and reducing technological ventures (Chitsaz et al., 2016). In this regard, sanctions influence entrepreneurial activities directly in Iran as expected by curbing access to international markets (Rezaei et al., 2017, p.2). Because the sanctions implicate the central bank in Iran, there is a limit on payment options, which can make entrepreneurial activities difficult (ibid.). One of these restrictions arises in international commerce, since the commercial exchanges were not possible through the Iranian banking system.

Considering entrepreneurship for development and economic growth, research has focused on various factors that affect this mechanism (Klapper and Richmond, 2009). Evidence shows that entrepreneurial actions are influenced by effective policy in governance of the entrepreneurship process and political stability (Fereidouni and Masron, 2012). Under uncertain conditions, such as policy reversals and sanctions, entrepreneurs are reluctant to allocate resources. Therefore, external conflicts and sanctions lead to higher business costs, thereby resulting in a smaller return on investment for entrepreneurs (ibid.).

This theoretical background is the basis for developing hypotheses about the effects of sanctions – and the easing of sanctions – on the output of the entrepreneurial ecosystem.

Hypotheses about people’s interest in becoming entrepreneurs

Easing of sanctions, as a positive change in an institutional condition in the ecosystem, is expected to increase people’s perceptions of opportunities for entrepreneurial activities. Economic and political stability, considered as a pre-requisite for investment and entrepreneurship (Fereidouni and Marson, 2012), can be achieved with the easing of sanctions and resulting increasing international interactions and trades. The easing of sanctions affects public policies and attitudes positively in support for entrepreneurship and private investment. Sanctions relief, as expected, causes an increase in oil production and export (Cordesman, 2016). The export of oil is the main source of government revenue in Iran (Farzanegan, 2011), and increases in oil production and export result in higher availability of public financing and, consequently, an increase in public financial support for different industries. According to the Flexible Accelerator Model (Blejer and Khan, 1984) higher levels of financial resources cause the private sector investments increase. In addition, the lifting of sanctions facilitates access to the international markets increasing international trades and creating higher levels of opportunity for investment.
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and entrepreneurship, thereby encouraging people to perceive higher opportunity to run a business. These considerations lead us to specify a first hypothesis:

**Hypothesis 1.** People’s perception of entrepreneurial opportunities increased after the agreement on easing sanctions.

Government policies and attitudes are considered when people make decisions about starting a business (Fereidouni and Masron, 2012; McCarthy et al., 2018). Sanctions relief increases economic stability and decreases interest and exchange rates by positively changing government monetary policies. Based on the Flexible Accelerator Model, the private sector investments increase when availability of financing resources increases (Blejer and Khan, 1984). After the lifting of sanctions, government incomes increase due to an increase in oil production and export. An increase in government revenue leads to higher financial support for private investment and entrepreneurship. Public financial support and positive changes in government monetary policies, including a decrease in exchange and interest rates, encourage people to start a business and participate in entrepreneurial activities in developing countries. Furthermore, the agreement on easing sanctions expands international communication and decreased investment risk by influencing the economic indicators which would in turn significantly affect an individual’s intention to start a business. This leads to our second hypothesis:

**Hypothesis 2.** People’s intentions to become entrepreneurs increased after the agreement on easing sanctions.

There are many factors, such as the structure of an economy affecting the generation of a larger share of the labour for self-employment occupations (Quadrini, 2009). Most of the occupational choice models for becoming an entrepreneur are always driven by the higher economic returns and finance, since entrepreneurship is extensively influenced by the availability of financing. Hence, several studies focused on financial support of institutions and systems (ibid.). King and Levine (1993) stated that a higher financial support systems create more opportunities for entering entrepreneurship. As discussed above, the increase in oil production and export entailed an increase in public finance resource availability for the private sector. According to the Flexible Accelerator Model (Blejer and Khan, 1984), an increase in financial resources and positive changes in economic indicators will encourage private sector investment. Therefore, we hypothesise:

**Hypothesis 3.** People’s entry into entrepreneurship increased after the agreement on easing sanctions.

2.4 Hypotheses about entrepreneurs’ motives and businesses

Institutions also affect motives. Entrepreneurs’ motives are conceptualised as a pull of opportunity in the market versus a push of necessity to make a living and perhaps seeing no better choice than starting a business (Cheraghi, 2017). In a stable and secure economic environment, entrepreneurs may be pulled by opportunity more than pushed by necessity. According to the Flexible Accelerator Model (Blejer and Khan, 1984), the easing of sanctions improves prospects for private investment and entrepreneurial activities. Positive changes in institutions, such as the easing of sanctions, result as expected in a change in motivational factors, in that the entrepreneurs’ motives are more pulled by opportunities and less pushed by necessity. This is our fourth hypothesis:
Hypothesis 4. Entrepreneurs’ motives changed; they became less pushed by necessity and more pulled by opportunity after the agreement on easing sanctions.

Innovation is an essential factor that drives entrepreneurial actions (Kanugo, 1999). The easing of sanctions facilitates access to the international environment and increases access to new technologies and knowledge as key resources for innovation and development. Based on the Flexible Accelerator Model (Blejer and Khan, 1984), which justifies higher private investment in relation to the level of public investment and public financial support after the easing of sanctions, we argue that the level of innovation should be increased after the relief of sanctions. In other words, access to updated and new technologies and knowledge as well as more international interactions and knowledge sharing on the one hand, and improved opportunities for investment and entrepreneurial activities on the other hand, trigger an increase in innovative activities with the easing of sanctions, as expected. Therefore, we hypothesise:

Hypothesis 5. Entrepreneurs’ innovation increased after the agreement on easing sanctions.

The sanctions imposed on Iran included a ban on international trade (Samore, 2015), and therefore international business and commercial communication were drastically reduced, and exports declined. Conversely, the relief of sanctions may facilitate international business, including export, in Iran. The change in the institutions after the easing agreement and access to international markets encourages entrepreneurs to pursue export activities. The availability of finance, which is due to an increase in the government income after the easing agreement, influences public attitudes and strategies, which should result in a decrease in exchange rates and positively affect export and import efforts. In this regard, a previous study showed that perceiving a higher level of macro barriers is a deterrent to entering foreign markets (Bebenroth et al., 2014). These considerations lead us to hypothesise:

Hypothesis 6. Entrepreneurs’ focus on exports increased after the agreement on easing sanctions.

Institutional and policy reforms affect the economic indicators, and this in turn enhances hopes for investment and entrepreneurship. Relief from sanctions entails greater availability of financial resources for the public sector and results in a decrease of interest and exchange rates by changing the government policy to support the private sector. As sanctions increase business costs (Fereidouni et al., 2010), easing sanctions reduces them. Reduction in business costs is related to economic indicators and government policies that enhance the entrepreneurs’ expectations for growth of their businesses, as expected. In this regard, the effects of institutions on the firms’ growth have been studied. The weak institutional context and cultural structure for business decisions in Russia has been compared to more elaborate institutions. The results revealed that weak Russian institutions hamper business (McCarthy and Puffer, 2013). Based on the Flexible Accelerator model, by increasing the government’s financial resources, a reduction in exchange and interest rates and business costs should result in increasing the entrepreneurs’ expectations for growth. This is our last hypothesis:

Hypothesis 7. Entrepreneurs’ growth expectations increased after the agreement on easing sanctions.
In short, the hypotheses posit that the institutional change of agreeing to ease sanctions has entailed increases in entrepreneurial activity, specifically in (1) people’s perception of opportunities, (2) intentions to become entrepreneurs, (3) actual entry into the entrepreneurial market, (4) opportunity motive rather than necessity motive, (5) innovation, (6) expectations for business growth and (7) exporting. These hypotheses are tested in the natural experiment.

3 Research design

To ascertain the effects of the agreement, we employ an experimental pre-post design. For ascertaining people’s interest in becoming entrepreneurs, the population is the adults in Iran. For examining entrepreneurial endeavours, the population is the entrepreneurs starting a business that they will own and manage, which is a subpopulation of the adults. The adult population in Iran has been surveyed for the Global Entrepreneurship Monitor, a cross-sectional survey conducted annually from 2008 to 2017 (Global Entrepreneurship Research Association, 2018).

3.1 Sampling before and after the agreement

Sampling approximates a national probability sample, selected in two stages, by cluster sampling with quotas, in accordance with a survey plan that was approved by the head of the survey of the Global Entrepreneurship Monitor (Bosma et al., 2012). In each year, about 40 locations were selected around the country, and adults were then randomly sampled by visiting households within each location. The adults were confidentially interviewed face-to-face by a student from that location. The students were trained to conduct the interviews in the Faculty of Entrepreneurship at the University of Tehran, which is home to the national GEM team that is responsible for implementing the survey (a team that has included the senior author of this study). Each year, just over 3000 adults were interviewed, for a total sample of 29,346 adults in the years 2008 to 2017 (the survey in 2011, though, was not included because of an unresolved issue of validity). Whether a respondent is an entrepreneur is ascertained by asking whether the respondent is currently starting a venture that s/he will own and manage (Bosma et al., 2012). This yielded a sample of 3,816 entrepreneurs.

The agreement was reached in July 2015, and in that year the annual survey was conducted around August. We therefore compared the sample surveyed in 2008–2014 with the sample surveyed in 2015–2017.

3.2 Qualitative field work

To understand how sanctions – and the agreement on easing sanctions – affected involvement in entrepreneurship, we also conducted in-depth interviews with entrepreneurs in Iran. Five entrepreneurs, representing different sectors and maturity of their business, were sampled by our first-named author. Each entrepreneur was interviewed confidentially in the vernacular, face-to-face and in a convenient place for about half an hour. We used a semi-structured guide with open-ended questions, including: Did the agreement result in any changes in the opportunities in the market? Are you optimistic that you will find more opportunities after the agreement? Have you
proceeded with any new activities such as introducing new products to the market or finding new customers? Did you consider expanding your business after the agreement?

Did the sanctions exert pressure on you to think about closing your company? How do you see sanctions and the easing of sanctions for companies and their performance? The interviews are analysed and reported to convey the meaning of the sanctions in the minds of the entrepreneurs.

3.3 Measurements

The following describes how the survey measured the seven dependent variables, the independent variable – time – and the control variables. These measures have been validated and used extensively in research (Bosma et al., 2012).

Perception of business opportunities as optimism around starting a business was measured by asking the adults: In the next six months, will there be good opportunities for starting a business in the area where you live? Affirming that opportunities are good is coded 1, whereas disconfirming this is coded 0. This measure is validated and used extensively in research (ibid.).

The intention to become an entrepreneur was measured by asking the adults: Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years? Intending to start is coded 1, not intending to is coded 0. This measure has been validated and commonly used in research (ibid.).

Entry of adults into entrepreneurship was measured by asking: Are you, alone or with others, currently trying to start a new business, including any form of self-employment or selling any goods or services to others? Entry was also measured by asking: Are you, alone or with others, currently trying to start a new business or a new venture for your employer as part of your normal work? Answering negatively to both questions means not entering, and is coded 0. Answer either of the two questions affirmatively is followed by questions to ascertain ownership and newness of the business, and if it is less than 3½ years old, the business is considered new, and entry is coded 1. This measure has been validated and is common in studies of entrepreneurship (ibid.).

Motive for starting a business was measured by asking the entrepreneur: Are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work? This measure has been validated and is common in research (ibid.).

Innovativeness of the entrepreneurs was measured by three questions: Have the technologies or procedures required for this product or service been available for less than a year, between one and five years, or longer than five years? Will all, some or none of your potential customers consider this product or service new and unfamiliar? Will all, some or none of your potential competitors consider this product or service new and unfamiliar? For each question, the response is coded 1, 2 or 3 for increasing innovativeness. The three measures are positively correlated (with Cronbach alpha .48), so they are averaged as a formative index of innovativeness. This index has been validated and used in research (e.g. Jensen et al., 2016).

Exporting by entrepreneurs was measured by asking: What proportion of your customers normally lives outside your country? The reported percentage is logged to reduce skewness. This measure has been validated and used (e.g. Hessels and van Stel, 2011).
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Expectation for growth of the entrepreneurs’ businesses is indicated by asking for both current size and expected future size: Not counting the owners, how many people are currently working for this business? Not counting owners, how many people will be working for this business five years from now? The expected growth is then measured by the difference between the two numbers, both logged to reduce skewness: log (1 + expected future number) – log (1 + current number). This measure has been validated and used in research.

The independent variable of interest is time period, i.e. the period before the agreement and the period after the agreement. Time refers to time of the survey. The survey in 2015 was conducted shortly after the agreement was reached in July. So the time before the agreement is the period 2008–2014, coded 0, and the time after the agreement is the period 2015–2017, coded 1.

Control variables are used in the regression analyses (Bosma et al., 2012). Analyses of adults control for personal background characteristics, namely gender (coded 0 for female and 1 for male), age (coded in years) and education (coded in years). Analyses of entrepreneurs also control for characteristics of the business, namely phase of the business (coded 0 for starting and 1 for operating phase), age of the business (coded in years, and then logged to reduce skewness), owners of the business (count of owners, logged) and size of the business (count of persons, logged).

3.4 Methods of analysis

Differences in outcomes between the two time periods are analysed by comparing frequencies (of opportunity perception, of intention, of entry and of motives) or means (of exporting, innovativeness, growth expectation). To ascertain the effects of time, controlling for individual characteristics, we use multiple regression, namely logistic regression when the dependent variable is dichotomous and linear regression when the dependent variable is numerical.

4 Results

The following reports analyses of people’s interest in becoming entrepreneurs, motives for becoming entrepreneurs and, finally, entrepreneurial output.

4.1 People’s interest in becoming entrepreneurs

The question here is: Did the 2015 agreement result in an increase in people’s interest in becoming entrepreneurs?

Hypothesis 1 posited that people’s perceptions of entrepreneurial opportunities increased. People’s perceptions changed, Table 1. The rate of adults perceiving opportunities as good increased after the 2015 agreement ($p = .005$ in a chi-square test), thus lending some initial support for Hypothesis 1.

Hypothesis 2 stated that people’s intentions to become entrepreneurs increased. People’s intentions changed, Table 1. The rate of adults intending to become entrepreneurs increased after the 2015 agreement ($p = .0001$ in a chi-square test), thus lending some initial support for Hypothesis 2.
Hypothesis 3 expected that people’s entry into entrepreneurship would increase. People’s entry changed, Table 1. The rate of adults starting as early-stage entrepreneurs increased after the 2015 agreement ($p = .002$ in a chi-square test), thus lending some initial support for Hypothesis 3.

### Table 1

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Perceiving opportunities as good</td>
<td>34.6%</td>
<td>36.2%</td>
</tr>
<tr>
<td>Intending to start</td>
<td>30.0%</td>
<td>41.8%</td>
</tr>
<tr>
<td>Starting as entrepreneur</td>
<td>12.0%</td>
<td>13.1%</td>
</tr>
</tbody>
</table>

Whether these before-and-after differences also exist when taking other characteristics into consideration is ascertained by logistic regressions, controlling for other conditions, Table 2. Table 2 shows that, even when holding other conditions constant, the agreement was followed by notable increases in adults’ perception of opportunity, intention to start and starting, thus lending further support for Hypothesis 1 ($\beta = .038$, $p$-value < .10), Hypothesis 2 ($\beta = .465$, $p$-value < .001) and also for Hypothesis 3 ($\beta = .052$, $p$-value < .10).

### Table 2

<table>
<thead>
<tr>
<th></th>
<th>Opportunity-perception</th>
<th>Intention to start</th>
<th>Starting as entrepreneur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-period, after agreement</td>
<td>.038 (*)</td>
<td>.465 ***</td>
<td>.052 (*)</td>
</tr>
<tr>
<td>Gender, male</td>
<td>.186 ***</td>
<td>.505 ***</td>
<td>.909 ***</td>
</tr>
<tr>
<td>Age</td>
<td>-.005 ***</td>
<td>-.033 ***</td>
<td>-.013 ***</td>
</tr>
<tr>
<td>Education</td>
<td>.029 ***</td>
<td>.059 ***</td>
<td>.053 ***</td>
</tr>
<tr>
<td>Intercept</td>
<td>-.906 ***</td>
<td>-.681 ***</td>
<td>-2.749 ***</td>
</tr>
</tbody>
</table>

Notes: Logistic regressions, listing the coefficients.

(*) $p$<.10; * $p$<.05; ** $p$<.01; *** $p$<.001.

The effect of the agreement upon perception of opportunity and entrepreneurial action was also brought out in our in-depth qualitative interviews in Iran. Entrepreneur ‘E’ reported: “We started our company close to the agreement time (i.e. 2014). It was our hope for the future and now, while we are working on our current company, we are looking for other opportunities, we are hopeful…”

In short, the 2015 agreement entailed increases in people’s perception of opportunity, intention to become entrepreneurs and starting as entrepreneurs.

### 4.2 Motives for becoming an entrepreneur

Going beyond the evident considerable increase in the choice to become an entrepreneur, the next question is whether motives also changed.

Hypothesis 4 posited that entrepreneurs’ motives changed: they became less pushed by necessity and increasingly pulled by opportunity. Motives changed, Table 3. The pull of opportunity became much stronger than the push of necessity ($p<.0001$ in a chi-square test), lending initial support for Hypothesis 4.
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Table 3  Motives of entrepreneurs, by time-period

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<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Opportunity-pull</td>
<td>50.4%</td>
<td>57.6%</td>
</tr>
<tr>
<td>Necessity-push</td>
<td>49.6%</td>
<td>42.4%</td>
</tr>
<tr>
<td>Sum</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>N entrepreneurs</td>
<td>2451</td>
<td>1209</td>
</tr>
</tbody>
</table>

Whether this before-and-after difference also exists when taking other characteristics into consideration is ascertained by a logistic regression, controlling for other conditions, Table 4. Table 4 shows that, even when holding other conditions constant, the agreement was followed by a substantial increase in the motive of opportunity rather than necessity, thus lending further support for Hypothesis 4 (β = .13, p-value < .10).

Table 4  Motives of entrepreneurs, affected by time-period

<table>
<thead>
<tr>
<th>Entrepreneurs’ opportunity-motive (contrasted necessity-motive)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-period, after agreement</td>
<td>.13 (*)</td>
</tr>
<tr>
<td>Gender, male</td>
<td>-.19 *</td>
</tr>
<tr>
<td>Age</td>
<td>.00</td>
</tr>
<tr>
<td>Education</td>
<td>.08 ***</td>
</tr>
<tr>
<td>Intercept</td>
<td>-.99 ***</td>
</tr>
<tr>
<td>N entrepreneurs</td>
<td>3642</td>
</tr>
</tbody>
</table>

Notes: Logistic regressions, listing the coefficients.

(*) p<.10; * p<.05; ** p<.01; *** p<.001.

That opportunity became a motive for business, an increasing pull following the agreement, was also emphasised in our interviews. Entrepreneur ‘A’ reported: “Since Iran’s economy is not functioning well, you cannot work and focus only on one industry, today oil and petroleum and tomorrow the automotive and construction industry. The agreement prompted us to work in other industries, too…”.

Similarly, entrepreneur ‘D’ reported: “None of the foreign oil and petroleum companies could come to Iran and invest in projects before the agreement, but after reaching the agreement, the ‘TOTAL’ company had permission to come to Iran and invest in a project in Khark Island, and we became the internal contractor of that project…”.

In short, the 2015 agreement entailed a switch in starting entrepreneurs’ motives: they became decreasingly pushed by necessity and increasingly pulled by opportunity.

4.3 Entrepreneurial output

Hypothesis 5 posited that entrepreneurs’ innovation increased. Innovation changed, Table 5 (p = .05 in a t-test). The agreement was followed by an increase in innovation, albeit small, thus lending some initial support for Hypothesis 5.

Hypothesis 6 stated that entrepreneurs’ focus on exporting increased. Exporting changed, Table 5 (p = .009 in a t-test). The agreement was followed by a notable increase in exporting, thus lending some initial support for Hypothesis 6.
Hypothesis 7 held that entrepreneurs’ growth expectations increased. Growth expectations changed, Table 5 ($p = .0005$ in a t-test). The agreement was followed by a substantial increase in growth expectation, thus lending some initial support for Hypothesis 7.

Table 5 Entrepreneurs’ innovation, exporting, and growth-expectation; by time-period

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation, mean of standardised</td>
<td>-.02</td>
<td>.04</td>
</tr>
<tr>
<td>Export, mean of standardised</td>
<td>-.03</td>
<td>.06</td>
</tr>
<tr>
<td>Growth-expectation, mean of standardised</td>
<td>-.05</td>
<td>.10</td>
</tr>
<tr>
<td>N entrepreneurs</td>
<td>2482</td>
<td>2744</td>
</tr>
</tbody>
</table>

Whether these before-and-after differences also exist when taking other characteristics into consideration is ascertained by regressions, controlling for other conditions, Table 6.

The first model in Table 6 shows that, when holding other conditions constant, the agreement was not followed by a discernible change in innovation ($\beta = .00$), and thus Hypothesis 5 is not supported.

The agreement was followed by notable increases in entrepreneurs’ exporting ($\beta = .08$, $p$-value<.05), thus supporting Hypothesis 6.

The agreement was followed by notable increases in entrepreneurs’ expectations for growth ($\beta = .07$, $p$-value < .05), thus supporting Hypothesis 7.

Table 6 Entrepreneurs’ innovation, exporting, and growth-expectation, dependent on time-period

<table>
<thead>
<tr>
<th></th>
<th>Innovation</th>
<th>Export</th>
<th>Growth-expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metric coefficients</td>
<td>Standardised coefficients</td>
<td>Metric coefficients</td>
</tr>
<tr>
<td>Time-period, after</td>
<td>.00</td>
<td>.00</td>
<td>.08 **</td>
</tr>
<tr>
<td>Gender, male</td>
<td>-.03</td>
<td>-.01</td>
<td>.08 *</td>
</tr>
<tr>
<td>Age</td>
<td>-.00</td>
<td>-.01</td>
<td>.004 *</td>
</tr>
<tr>
<td>Education</td>
<td>.02 ***</td>
<td>.09 ***</td>
<td>.004</td>
</tr>
<tr>
<td>Firm-phase, operating</td>
<td>-.22 ***</td>
<td>-.11 ***</td>
<td>-.19 ***</td>
</tr>
<tr>
<td>Firm-age</td>
<td>-.14 **</td>
<td>-.08 **</td>
<td>-.06</td>
</tr>
<tr>
<td>Firm-owners</td>
<td>.09 **</td>
<td>.05 **</td>
<td>.01</td>
</tr>
<tr>
<td>Firm-size</td>
<td>.11 ***</td>
<td>.05 ***</td>
<td>.06 *</td>
</tr>
<tr>
<td>Intercept</td>
<td>-.16(*)</td>
<td>-.19(*)</td>
<td>-.13</td>
</tr>
<tr>
<td>N entrepreneurs</td>
<td>3593</td>
<td>3412</td>
<td>2899</td>
</tr>
</tbody>
</table>

Notes: Linear regressions, listing the coefficients. The dependent variable is standardised.

( *) $p$<.10; * $p$<.05; ** $p$<.01; *** $p$<.001.

The impact of sanctions – and the easing of sanctions – upon innovation was also considered in our qualitative interviews. Entrepreneur ‘A’ reported a personal view: “NO! sanctions do not result in innovations in the way that you think you don’t have
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some resources and now you try to be innovative and create them yourself. Without sanctions we could go to exhibitions, check the machines from different companies in the world, buy some of them and bring them to Iran. Then we customised the machine in Iran according to local standards and we had innovations…” Entrepreneur ‘B’ reported that sanctions are not the only hurdle for innovation: “We had a plan for several new projects a long time before sanctions… I do not think that it is only sanctions that have stopped us from doing them; market stagnation was also important. We innovated as much as we could during the sanctions but at some point we could not continue, which is not all related to sanctions or the agreement…” Entrepreneur ‘C’ reported how the market changed with sanctions and after the agreement: “Annually we introduce 10-15 new products to the market. Before sanctions we were searching in the market and creating something, but during the sanctions our customers came and asked us to make something. Now, after the nuclear agreement, the customers ask us less to produce something; hence, we continue with the same approach that we had before the sanctions…”

The impact on exporting and growth of businesses was also voiced in the interviews. Entrepreneur ‘A’ reported: “We were always thinking of expansion of our business; during the sanctions we expanded internally and after the agreement we could reach a sufficient level to develop our business to neighbouring countries, and it is really good for us…” Entrepreneur ‘A’ continued: “After the agreement we hope to launch representatives in big industrial cities…”

In short, the 2015 agreement did not entail a discernible change in innovation, but entailed considerable increases in starting entrepreneurs’ exporting and growth expectations.

5 Conclusions and discussion

The research question was: In Iran, how did the institutional change with the 2015 agreement change entrepreneurial pursuits? The more general question is: How is institutional change bringing changes in entrepreneurial pursuits?

5.1 Discussion of findings

This institutional change begs the hypothesis that easing sanctions entailed an expansion of entrepreneurship. This was tested by a natural experiment, comparing entrepreneurial pursuits before and after the agreement, using the annual survey of adults and entrepreneurs in Iran conducted by the Global Entrepreneurship Monitor, complemented by in-depth interviews.

Pre- and post-survey comparisons revealed increases in people’s perceptions of opportunity, intention to become entrepreneurs and entry into entrepreneurship. Entrepreneurs became increasingly pulled by opportunity and decreasingly pushed by necessity, increasingly export-oriented, and expectations for growth of businesses increased. Our qualitative interviews showed the discouragement and frustration that prevailed in business during the sanctions up to mid-2015, when reaching agreement on easing sanctions brought encouragement, optimism and renewed faith in the future and in entrepreneurial endeavours.
5.2 Contributions

The contributions are at least five. Firstly, the study contributes to the conceptualisation of the ecosystem of entrepreneurship by including the institutional condition of sanctions, or boundary of the market, as an element of the ecosystem.

Secondly, the study contributes to theorising by applying the Flexible Accelerator Model (Blejer and Khan, 1984) to account for the impact of sanctions on entrepreneurial pursuits.

Thirdly, the study contributes to theorising about the ecosystem by corroborating several hypotheses about the effects of a change in the institutional condition, namely easing the sanctions or expanding the boundary of the market, upon the output of the ecosystem, namely entrepreneurial activity, and, more generally, our understanding of the consequences of institutional change for society (Andersen, 2008).

Fourthly, the study contributes to methodology, demonstrating that experiments with institutional conditions are feasible in research on entrepreneurship.

Finally, the study can be considered an evaluation of the detrimental impact of sanctions, and is thereby of academic value for scholarship on sanctions and of political strategic interest both to the Iranian targets of sanctions and to the powers that imposed the sanctions.

Institutional change in the ecosystem led entrepreneurial behaviours to change. Economic stability and supportive government policies cause the risks of business investment to decrease and entrepreneurship to increase. Entrepreneurs have to overcome numerous factors arising from the context (Zahra et al., 2014). While there is no consensus on the contextual influences motivating or discouraging people from investing and participating in entrepreneurial activities, the effects of different macro-level institutional indicators have nevertheless been evident in several studies (Smallbone and Welter, 2012; Zahra et al., 2014). In line with these studies, this research investigated changes in output following an institutional change in the ecosystem.

5.3 Further research on institutional change in entrepreneurial ecosystems

In addition to the results obtained, which represented an increase in entrepreneurial tendencies, a noteworthy consideration pertains to the significance of the effects of government policies on the business environment derived from interviews with business owners in Iran. One of the important factors causing change in investment behaviour is the psychological aspects of the changes in government policies. These psychological aspects of institutional changes in the preliminary stages either promote or discourage entrepreneurial attitudes and behaviours. Sanctions relief has far more remarkable psychological effects than immediate economic effects on the business environment in Iran on individuals’ motivation for entrepreneurship and investment. Therefore, it is highly recommended that future research focus on the psychological effects of changes in institutions on entrepreneurs’ behaviour and their performance.
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References


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