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Perception of social justice implication in brain drain management in Iranian educational institutions

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Abstract

Purpose – The purpose of this paper is to study brain drain as a social problem and elaborate a five-dimensional social justice model as the main cause of brain drain. The paper explores the effects of distributional justice, emotional justice, procedural justice, transactional justice, and informational justice on brain drain intention.

Design/methodology/approach – The method of research is survey method. This research is functional in terms of target and is descriptive. Moreover, the research is a field study from the information gathering perspective; and from the aspect of relationship between variables, it has casual type.

Findings – The results of this study demonstrate that justice is a critical issue among the scientific elites of Iranian society. This study demonstrates the existence of a negative relationship between social justice and intention to emigrate (brain drain) in Iran.

Research limitations/implications – Despite the lack of precise statistical information in this area, the paper seeks to critically analyze the brain drain phenomenon in Iran. The use of questionnaire meant that more in-depth analysis was not possible to obtain.

Practical implications – It is important to prevent elite emigration, particularly since elites represent vital cultural, social, and economic capital. In relation to informational justice, which is not likely to act as a single cause of brain drain but acts in concert with other factors, it should be recalled that communication plays a vital role.

Originality/value – Surprisingly, no empirical research has yet been done in Iran to examine possible relationship between occurrence and/or the rate of the talent flow and social justice.

Keywords Iran, Educational institutions, Social justice, Skilled workers

Paper type Research paper

1. Introduction

According to the International Monetary Fund report in 2007, the Islamic Republic of Iran has the highest rate of "brain drain" among 61 "developing" and "less developed" countries it measured. More than 150,000 Iranians leave Iran every year. The flight of human capital costs the government over $38 billion annually, two times the revenues received from selling oil. Under the provisions of a five-year development plan,

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the country is trying to create jobs for its unemployed population, though the results of these efforts have not yet materialized. Consequently, the country remains unable to benefit from its educated diasporas or its pool of unemployed experts at home. However, in spite of this situation and Iran's technological and industrial sanction due to political conditions in the past 25 years, Iran continues to maintain high levels of education and research in few major universities, although mostly at undergraduate level. Iranian students continue to win technical tournaments in Robotics, Computer Science, and other fields of engineering and science every year, and Iranians continue to increase the number of their publications in technical journals despite their highly limited facilities and resources. Despite the lack of precise statistical information in this area, this paper seeks to critically analyze the brain drain phenomenon in Iran.

The term brain drain first appeared in a report by the Royal Society of London published in 1963. In its original sense, the term referred to the exodus of British scientists to the USA (report to London royal community, 1963). Before the Second World War, immigrating of highly skilled immigrants was very rare and often insignificant. Brian drain, as an international problem, originated in the post-war period, when the USA became the undisputable leader of western science and a magnet for top level European scientist and technicians (Brana-Shute and Brana-Shute, 1982).

Recently, the concept is used to express expert's migration to any country; however, the final destination is still USA, i.e. an expert may leave his/her country of A to country B which B is more developed, and from B to country C which is even more developed and richer, but finally he/she aims to reach to the USA. Thus, brain drain could be considered in a hierarchy.

During the 1960s and 1970s movements of highly skilled persons from developing countries to developed world came to the fore. Therefore, the countries with already shallow pool of qualified citizens, started to lose the best ones. On that account, the issue was brought up before United Nations. Subsequently, interest in the causes and consequences of the brain drain resulted in debates and resolutions (Hansen, 2004, p. 2). In the 1970s, the developing countries took some actions to discourage the outflow and encourage the return of skilled workers. One of the ideas was levying an international tax on skilled workers who left their country of origin. The wealthy countries reacted to this claim immediately emphasizing the strength of the Article 13 the Declaration of Human Rights, which stresses the right of the people to live where they choose.

The whole situation concerning brain drain changed in 1978, when a paper was published by the United Nations Institute for training and research. This study demonstrated that many of those who had left their countries of origin, especially the most brilliant ones, returned home later. Thus, there was an illusion that brain drain was no longer a problem. However, the number of highly skilled migrants continued to rise (Brana-Shute and Brana-Shute, 1982). Events during the 1990s reintroduced the brain drain issue to policymakers and academics. The reason was simple: ongoing increase in skilled immigrations. The series of economical and political changes had great influence on migratory flow of the highly skilled; however, the immigration policy in the receiving countries was the chief reason for the increased brain drain. The most industrialized countries, notably the USA, Canada and Australia, France, the UK and others have been competing with each other to attract more highly skilled persons. And this competition among the developed countries is still likely to continue in future (Davenport, 2004).

As discussed later, different factors and stimulus could potentially affect the occurrence and/or the rate of the talent flow and each could be studied independently. Sensitivity to justice, especially social justice, is one such factor. Surprisingly, no empirical research has yet been done in Iran to examine this possible relationship and thus this paper concentrates on social justice as a main factor influencing the Iranian brain drain.

2. Defining brain drain

It has already passed more than 50 years since the term brain drain was introduced for the first time, yet there is no universally accepted definition for it. The concept of brain drain in the context of developing countries generally refers to "permanent or long-term international emigration of skilled people who have been the subject of considerable educational investment by their own societies". The transfer of skills and knowledge from the country of origin to the host country is considered to be a serious loss for the origin country, recalling the crucial role of human resources in the growth of these countries (Brana-Shute and Brana-Shute, 1982). The use of the word "brain" refers to any skill, competency or attribute that is seen as a potential asset. "Drain" implies that this rate of exit is at a greater level than "normal" or than what might be desired. Linking the two implies the departure of the most talented at an appreciable rate (Davenport, 2004). International Organization for Migration (IOM) classifies brain drain as one of the categories of labor-related migration. Thus, the level of education is the only criterion how to distinguish between labor migration and brain drain (IOM, 2003). The quality of education that the immigrant carries from the home country plays an important role in the ease or difficulty of finding a suitable job in the host country. A controversial question is whether the migration of an educated person who cannot apply his skill in his origin country is a loss or not. Obviously, not utilizing his/her skill or knowledge in the origin country is a waste of the human resource. It also should be considered that the terms "skilled" and "highly skilled" are different; highly skilled persons are those who have higher education and work professionally in a certain area, while skilled people are those graduated from high school. Nowadays, the migration of professionals like nurses and teachers is also called brain drain.

Additionally, there are other related words and terms that help understanding of the concept. For example, "brain waste" is used where educated migrants very often do jobs for which they are overqualified. "Brain circulation" is utilized when the workers in one country are replaced with foreign workers. "Brain export" means sending skilled workers abroad to let host country enjoy its economic advantage. This strategy aims to improve a long-term balance by return of money and investment, more skilled persons, knowledge and technology transfer. Other related concepts include "human capital", "international flow", "social movement", and "elite's circulation".

3. Brain drain in Iran

About 200 million people (3 per cent of world population) live out of their origin country. This trend is expected to rise in coming decades. According to Ozden and Schiff (2006) comparative study on migration and brain drain, which is published by UN, Middle Eastern and African countries are compared on a number of criteria. Below are some statistics to clarify Iran situation against other Middle Eastern and North African countries.

In Table I, column 1 shows total rate of immigration from Middle East and North Africa to the developed countries in two years 1990 and 2000. According to this chart, after Turkey (about two million) and Morocco (about one million), Iran and Algeria

Country	Number of migrants 1990	Number of migrants 2000	Ratio of elites to whole number of migrants 1990	Ratio of elites to whole number of migrants 2000	Ratio of scientific migrants to whole number of migrants 1990	Ratio of scientific migrants to whole number of migrants 2000
Iran	250,000	500,000	80	85	26	15
Jordan	25,000	50,000	78	85	9	7
Israel	100,000	150,000	82	87	9	8
Algeria	400,000	500,000	9	23	7	10
UAE	1,000	1,250	60	85	0	1
Bahrain	2,000	4,500	68	79	4	5
Turkey	1,300,000	2,000,000	24	24	8	6
Tunisia	190,000	230,000	20	37	18	13
Djibouti	800	1,500	33	53	8	12
Syria	80,000	120,000	63	72	8	7
Iraq	100,000	200,000	66	69	8	11
Saudi Arabia	10,000	11,000	75	87	1	1
Oman	700	1,200	50	79	0	1
Qatar	1,000	1,500	70	85	1	2
Kuwait	5,000	12,000	83	90	3	7
Lebanon	200,000	250,000	65	72	45	38
Libya	11,000	12,000	65	79	2	2
Morocco	80,000	100,000	23	29	21	17
Egypt	170,000	200,000	75	82	6	5
Yemen	9,000	12,000	55	67	5	4

Source: Özden (2006)

Table I.
Comparison of brain drain in the Middle East and North Africa

(about five thousand) have the most immigrants in year 2000. Lebanon, Tunisia, Egypt and Iraq with about 200,000 to 250,000 are in next levels. Column 2 compares the percentage of brain drain in two years 1990 and 2000 based on the level of education (high school and college). As we see, Iran is among the first countries due to the percentage of immigrants with high school and college education. In all of these countries the rate of university graduates is high. By comparing the first and second column it can be stated that Iran is in the second place in terms of the rate of graduate and skilled immigrants among the others in year 2000. According to "Educated and skilled immigrant" (column 2) in 2000, Turkish educated immigration is approximately 25 per cent of all immigration, meaning 500,000 people (2,000,000*25 per cent). After that, Iran is in the second place with 21 per cent; meaning 425,000 people (2,000,000*21 per cent). In column 3, the rate of graduate immigrants is compared as a percentage of all graduated in 1990 and 2000. We can see Lebanon is placed after Iran. Another point that should be considered in this chart is reduction of this rate in 2000 in comparison with 1990. The main reason is probably the increase in the number of educational institutions and training centers in those years, such as Azad University in Iran.

4. Justice

For any migration case there will be a mix of motives to consider and any combination of them may influence the decision about whether to leave and where to go. In this paper, we are interested in workers of high intellectual quality, carrying substantial

intellectual capital. In general, the loss of such workers will be a detriment to the economy of a country as long as their marginal social product is positive. Talented people will make a positive (and usually substantial) contribution to economic welfare, regardless of whether they have much infrastructure to work with or not. Obviously in countries where physical input for research and science from outside is absent or very scarce, the exercise of their own intellectual capability – as the principal resource involved – is likely to be of special value (Kannappan, 1968).

The study of justice or fairness has been a topic of philosophical interest that extends back to Plato and Socrates. But although justice has been humanity's aspiration since ancient times, discussion of its nature, as a basic question in political philosophy, still continues (Pour Ezzat., 2003). According to Rawls (1971), justice lies at the root of every aspect of human life and is the first virtue of all social institutions. And although Maslow (1954, p. 22) does not mention justice in his pyramid of human needs, justice is implicit in terms he does include, like fairness, honesty, and balance. Indeed, justice can be seen as the focal point of all other moral and political virtues (McLeish, 1993, p. 403), suggesting criteria to judge whether human needs are met in complex social institutions (Folger and Cropanzano, 1998).

5. The five-factor model of social justice

In social justice literature, four prominent models can be identified: the first is a one-factor model, in which each constructing item is indicative of one large organizational justice factor (Greenberg, 1990; Lind and Tyler, 1988). The second is a two-factor model, with distributive justice as one factor and procedural justice as the other: procedural justice comprises informational and interpersonal justice, while distributive justice is defined briefly in the following paragraphs. This two-factor model is currently the most commonly used conceptualization in the justice literature (Rego and Cunha, 2006). The third is a three-factor model, exploiting distributive, procedural, and interactional justice (subsuming both informational and interpersonal justice). These justice factors are defined later. The three-factor model is currently the second-most commonly used conceptualization (Greenberg and Lind, 2000; Byrne and Cropanzano, 2000; Cohen-Charash and Spector, 2001; Gilliland and Chan, 2001). Finally, Colquitt found that a four-factor confirmatory model provides the best fit with empirical reality (Colquitt, 2001; Colquitt *et al.*, 2001). According to recent research, Rego and Cunha suggest another factor called "emotional justice" which could be added to the existing four-factor model and constructs a new five-factor model. Since all five factors are correlated, isomorphic and dependent, the model with the more number of factors is more accurate. Therefore, the five-factor model is the most accurate one in explaining social justice and brain drain relationship. In the following, the five factors are discussed individually.

Before 1975, the study of justice was primarily concerned with distributive justice. Much of this research was derived from initial work conducted by Adams (1965), who used a social exchange theory framework to evaluate fairness. According to Adams, what people are concerned about is not the absolute level of their outcomes but whether those outcomes are fair. Adams suggests that one way to determine whether an outcome is fair is to calculate the ratio of one's contributions or "inputs" (e.g. education, intelligence, and experience) to his/her outcome and then compare that ratio with that of others.

For many years social science was ignoring an important part of man which is his "emotion". In recent decades emotion concept has found its way in social

science discussions. The emotional justice refers to equally expressing and caring about people's emotions and is less regarded in justice literature. Elites have elite emotions. Their emotional intelligence is expected to be higher than of ordinary people.

With the publication of their book summarizing disputant reactions to legal procedures, Thibaut and Walker (1975) introduced the study of process to the justice literature as procedural justice. They viewed third-party disputing resolution procedures, such as mediation and arbitration, having both a process stage and a decision stage. They referred to the amount of influence disputants had in each stage as the evidence of process control and decision control, respectively. Their research suggested that disputants were willing to give up control in the decision stage as long as they retained control in the process stage. Stated differently, disputants viewed the procedure fair if they perceived they had control over the process (i.e. control over the presentation of their arguments and sufficient time to present their case). This process control effect is often referred to as the "fair process effect" or "voice" effect (Lind and Tyler, 1988), and it is one of the most replicated findings in the justice literature. In fact Cohen-charash and Spector (Colquitt *et al.*, 2001) virtually equated process control with procedural justice.

Bies and Moag (1986) introduced the most recent advance in justice literature by focusing attention on the importance of the quality of the interpersonal treatment people receive whenever procedures are deployed. They referred to these aspects of justice as interactional justice. More recently, interactional justice has come to be seen as consisted of two specific types of interpersonal treatment (Greenberg, 1990, 1993). The first is interpersonal justice which reflects the degree to which people are treated with politeness, dignity, and respect by authorities or third parties who are in charge of executing procedures or determining outcomes. The second is informational justice and is described in the following.

Informational justice focuses on the explanations provided to people that convey information about why procedures are used in a certain way or why outcomes are distributed in certain fashion. Interpersonal justice acts primarily to alter reactions to decision outcomes, because sympathy can make people feel better about an unfavorable outcome (decision). Informational justice acts primarily to alter reactions to procedures, in which explanations provide the information required to evaluate structural aspects of the process.

6. Social justice, brain drain, and research hypotheses

In this paper, we propose perceived social justice as a reason influencing the migration intention. Sensitivity to justice can be seen in all levels of society. Nevertheless, elites are of the most struggling people in society in terms of carrying the burden of technical and/or managerial responsibilities and that makes them more sensitive to injustice. Hence, the relation between brain drain and social justice is likely to be significant. Elites who feel more injustice are more likely to migrate to a better country. For instance, irrational difference of income to life cost ratio between home and host country is a main factor influencing brain drain (Watanabe, 1969). Or when an individual feels injustice or corruption in his/her organization administration, he/she is more likely to get dissatisfied and migrate. When elites do not perceive justice in their interactions with governors, colleagues or friends, they are likely to migrate if possible. In addition, and given the increasing importance of information and communication, it is likely that elites will seek to migrate to countries with more freedom of information and communication.

Based on this discussion, a number of research hypotheses are proposed. In the *H1* the influence of general construct of justice (the sum of the five factors) is examined and then in subsequent hypotheses, each single factor is tested.

The main hypothesis is:

H1. Perceived social justice negatively is related to brain drain intention.

Subsequent hypotheses include:

H2. Perceived distributive justice negatively is related to brain drain intention.

H3. Perceived emotional justice negatively is related to brain drain intention.

H4. Perceived procedural justice negatively is related to brain drain intention.

H5. Perceived transactional justice negatively is related to brain drain intention.

H6. Perceived informational justice negatively is related to brain drain intention.

7. Methodology

This research is functional in terms of target and is descriptive. Moreover, the research is a field study from the information gathering perspective; and from the aspect of relationship between variables, it has casual type. The method of research is survey method whose important advantage is its generalizability. The independent research variables are distributional, emotional, procedural, transactional, and informational justice while "intention to immigrate" is the dependent variable.

a. Population and sample

Students of four universities, University of Tehran, Sharif University of Technology, Tehran University of Medical Sciences and Iran University of Medical Sciences comprised the potential statistical population. This group was selected due to the past high rate of brain drain among its members in. From within this group, potential respondents were identified via random sampling. According to Morgan Table, the volume of the sample is estimated at about 560 persons. The respondents were different in education (PhD, Masters, and Bachelor), though for this study their ideas have equal value. A total of 586 persons responded to the questionnaires. About 33 per cent of them (193 persons) were women and 67 per cent (393 persons) were men. From 585 persons who cited their level of education, 51.3 per cent (304 persons) were Bachelor students, 23.9 per cent (142 persons) were Master Students and 23.4 per cent were PhD students. The average age of respondents was 22.7 years old.

b. Data gathering tools, reliability, and validity

The main tool of data collection was a questionnaire. Two scales were designed for measuring intention to immigrate and social justice using Statistical Package for the Social Science (SPSS) 13 software. In designing the questionnaires, we strived for items with simplicity. The primary questionnaire consisted of 28 items, 15 items for the five dimensions of justice (three items for each dimension) and 13 items for intention to immigrate. The item number 24 from transactional justice was omitted because of low factor load. The questionnaire employed a LIKERT scale from 1 (strongly disagree)

to 5 (strongly agree). From 600 questionnaires distributed, we received 593 responses, a return rate of 98 per cent.

For determining the reliability of scales, 30 pilot questionnaires were distributed and gathered. In this primary study, the alpha of intention to immigrate was low, but after omitting three items (9, 11, and 12) it increased significantly. Omitting item 24, related to transactional justice, also increased the alpha of social justice. The final alpha of intention to immigrate is 86 per cent and the final alpha of social justice is 91 per cent.

To ensure the validity of items, we used both content and factor validity. Content validity of scales was confirmed by asking experts and specialists. After implementing necessary modifications we were confident that the scales had content validity. Testing the factor validity of scales was done by Confirmatory Factor Analysis using LISREL 8.53 software. The results of confirmatory factor analysis for both intention to immigrate and social justice are shown in Tables II and III.

Signifying a measurement model (Confirmatory Factor Analysis) is acceptable under two circumstances: first, its fitness indices must be suitable, and secondly *t*-values must be significant. If the χ^2 is low, the ratio of Chi Square to Degree of Freedom (DF) is lower than 3, root mean square error of approximation (RMSEA) is lower than 0.05, and also goodness of fit (GFI) and adjusted GFI (AGFI) are bigger than 90 per cent, we can say the model has a very good fitness. Besides, *t*-values with magnitudes >2 are considered to be significant.

By reviewing the results of LISREL it is obvious that the measurement model for the Iranian brain drain phenomenon is suitable: both the χ^2 and the RMSEA are low, the ratio of the Chi Square to the DF is low, and also both the GFI and the AGFI are more than 90 per cent. All *t*-values are significant too. Also the results of LISREL indicate that the measurement model of social justice is suitable: The χ^2 and the RMSEA are low, the ratio of the χ^2 to the DF is low, and also the GFI and the AGFI are more than 90 per cent. All *t*-values are significant too. The whole results show that the scales of this study have high reliability and validity.

c. Analysis methods of results

For testing the hypotheses, first we used the Spearman Correlation Test using SPSS. Then the casual relation between independent and dependent variables of study was tested by structural equation modeling (SEM) method in LISREL software. Typically, for ensuring

		Standard quotient	*t*-value
1.	Hope to development trend of Iran	0.74	14.79
2.	Few number of student, resolute to migrate (R)	0.37	3.03
3.	Stay in Iran just because of family problems	0.58	9.37
4.	Most students are resolute to migrate	0.45	9.77
5.	Perception of governors to disregarding BD	0.56	9.71
6.	Importance of knowledge and scholars	0.49	8.81
7.	Security because of staying in Iran	0.84	17.38
8.	Perception of growth opportunity in Iran	0.72	14.72
10.	Perception of the view of governors from scientists	0.61	13.47
13.	Perception of migration as a mode or real need	0.55	11.30

Notes: $\chi^2 = 42.91$; df = 30; RMSE = 0.027; GFI = 0.97; AGFI = 0.95; all *t*-values are significant

Table II.
Measurement model of intention to brain drain

Question			Standard quotient	*t*-value
14.	Distributional	Fair distribution of resources of Iran	0.56	11.31
15.	Distributional	Sense of getting own right	0.50	9.35
16.	Distributional	To feel just of tasks and responsibilities	0.56	10.54
17.	Emotional	To feel fair of other's expression of emotions	0.53	12.16
18.	Emotional	Perception of relationship of Iranian governors with other's power	0.35	7.36
19.	Emotional	Perception of amount of attention of managers to powerful persons	0.68	14.66
20.	Procedural	Procedures are the same for all	0.51	9.23
21.	Procedural	Executing the rules only for powerless persons (R)	0.38	7.95
22.	Procedural	Benefits of powerful persons are latent in society rules	0.48	6.48
23.	Transactional	Others honest behaviors	0.45	9.50
25.	Transactional	Not perception of discrimination in daily transactions	0.76	13.41
26.	Informational	Providing needed information like others	0.48	4.84
27.	Informational	Perception of that some people can provide important information	0.48	7.67
28.	Informational	Perception of some people gets the needed information sooner than others	0.61	8.53

Notes: $\chi^2 = 105.67$; DF = 58; RMSE = 0.037; GFI = 0.94; AGFI = 0.91; all *t*-values are significant

Table III.
Measurement model of justice

of relationship between two variables, we first used a correlation test. When these two variables are quantitative we must use Pearson correlation test and when they are qualitative, we must use Spearman correlation test. In this study, the variables are qualitative so we used Spearman correlation test. The results of correlation are shown in Table IV.

d. Structural equation modeling

For testing the casual relations, as cited in hypotheses, we use SEM. Confirmatory factor analysis of the last phase and also fitness indices increase the validity of suggested conceptual model.

All six models were run. In the first model the casual relation of the whole construct of justice (with five components) and brain drain was tested. In the other five models the relationship of every single subset of justice (distributional, emotional, procedural, transactional and informational justice) with brain drain was investigated. Figure 1 shows the results of the first hypothesis using SEM method. In this figure, which is acquired by LISREL software, the quotient of the suggested casual relationship between social justice and brain drain is demonstrated. Table V illustrates the results of all hypotheses using SEM method.

First all *t*-values are significant, so all hypotheses are accepted. Second, validity and fitness of all models are confirmed since in all models the χ^2 and the RMSEA are low, the ratio of the χ^2 to the DF is low, and also the GFI and the AGFI are more than 90 per cent.

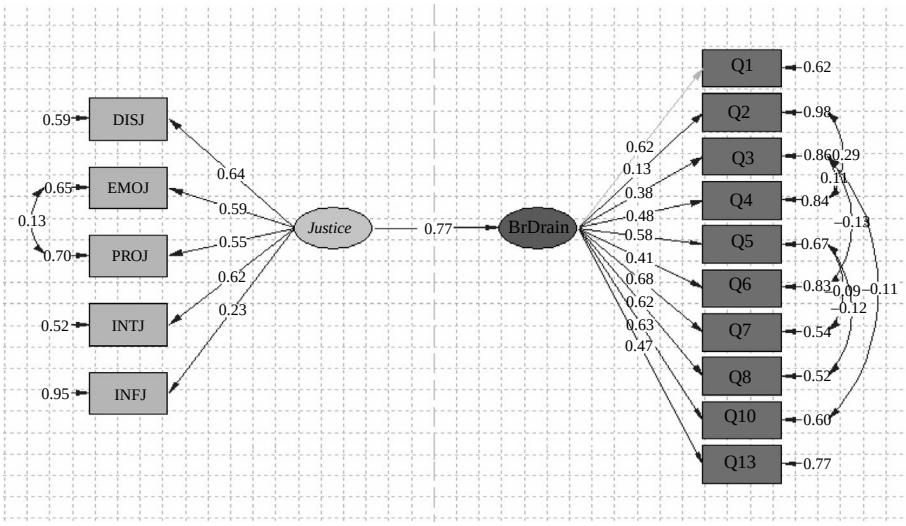
8. Discussion and conclusion

This study was conducted to investigate the relationship between social justice, including its dimensions, and intention to immigrate (brain drain) in order to address

Table IV.
Average, standard deviation, and correlation matrix of study variables

Informational Justice	Transactional justice	Procedural justice	Emotional justice	Distributional justice	Brain drain	Standard deviance	Average	
					1	0.47574	3.3179	Brain drain
				1	−0.457	0.74975	2.1963	Distributional justice
			1	0.310	−0.395	0.65784	2.0127	Emotional justice
		1	0.440	0.317	−0.332	0.68512	2.1428	Procedural justice
	1	0.302	0.369	0.231	−0.259	0.56320	2.4321	Transactional justice
1	0.156	0.147	0.189	0.142	−0.194	0.45903	1.6621	Informational justice

Note: All quotients are significant in 99 per cent



Notes: χ^2 = 160.20; df = 82; *p*-value = 0.00000; RMSEA = 0.039

Figure 1.
Testing the main casual model using SEM method

Model			R	*t*-value	Result	χ^2	DF	RMSEA	GFI	AGFI
1.	Brain drain	← justice (whole)	−0.77	−12.32	Accept	135.36	80	0.034	0.95	0.93
2.	Brain drain	← distributional justice	−0.66	−10.45	Accept	81.58	58	0.026	0.96	0.94
3.	Brain drain	← emotional justice	−0.72	−10.17	Accept	128.64	55	0.048	0.95	0.93
4.	Brain drain	← procedural justice	−0.68	−8.67	Accept	116.46	57	0.042	0.95	0.93
5.	Brain drain	← transactional justice	−0.61	−8.85	Accept	61.39	44	0.026	0.97	0.95
6.	Brain drain	← informational justice	−0.22	−3.32	Accept	67.61	58	0.017	0.97	0.95

Note: All *t*-values are significant

Table V.
The results of testing all hypotheses using SEM method

the shortage of studies on this important issue. In recent years, politicians and policy makers have concentrated on social justice, but these efforts often focus on addressing the needs of the socioeconomically disadvantaged. The results of this study demonstrate that justice is a critical issue among the scientific elites of Iranian society. This study demonstrates the existence of a negative relationship between social justice and intention to immigrate (brain drain) in Iran. According to the results of Figure 1 and Table IV, the main hypothesis of study – the relationship between social justice and intention to immigrate – is confirmed. As we see, correlation quotient is −0.77 and so the determination quotient is 0.60. This means about 60 per cent of intention to immigrate can be explained by perceptions of insufficient social justice in Iran. Also this finding shows that there are other factors affecting the intention to immigrate that must be investigated in future studies. The results of subsequent hypotheses also

indicate that perceived emotional justice has the most effect and perceived informational justice has the least effect on the intention to immigrate.

Below, Iran's intellectual elites' perceptions of the requirements for social justice improvement in the country the factors are discussed.

Distributive justice is highly significant in managing the brain drain phenomenon. The analysis indicated that elites do not perceive the distribution of financial, physical, and social resources just and this intensifies their migration intention. Governors can address this trend by providing financial security and greater openness in areas like research and development. Emotional justice is also a highly significant issue with a negative relation to intention to immigrate of about 51 per cent, which means the respondents do not perceive the society as providing adequate fairness. Procedural justice is also negatively related to intention to immigrate by 46 per cent, indicating that elites perceive inequity and inconsistency in the application of society's stated rules and procedures. Meanwhile, transactional justice is negatively related to intention to immigrate by 37 per cent, indicating that people do not believe that agreements are honored or complied with. Finally, informational justice, which one would expect to have considerable significance in today's knowledge-based economy, scored 33 per cent, i.e. the least significant score when compared to the others, indicating the lowest influence intention to immigrate. Probably informational justice alone cannot make elites leave the country, but it certainly aggravates their intention in combination with the other factors. An informational justice improvement strategy could thus help to decrease the brain drain flow and convince the elites to return.

However, more important is to prevent elite immigration, particularly since elites represent vital cultural, social and economic capital. In relation to informational justice, which is not likely to act as a single cause of brain drain but acts in concert with other factors, it should be recalled that communication plays a vital role. In fact to strengthen civil society and revitalize democracy, knowledge and information so as to generate awareness, as well as considerable effort on the part of both elites and government, will be required. This presents a formidable challenge; whether it will be taken up in our lifetimes, only time will tell.

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