

## The Relationship between Social Entrepreneurship and Sustainable Development from the Social Experts' Points of View

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### ارتباط کارآفرینی اجتماعی و توسعه پایدار از نظر خبرگان اجتماعی

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#### چکیده:

#### Abstract:

This research is a survey and exploratory study to present a conceptual model for the sustainable development of Iran based on social entrepreneurship. Its approach for conceptual modeling is based on *Path Analysis through Multiple Regression Method*. The study has benefited from five questionnaires (four for the *Delphi Method's* rounds and another for the conceptual modeling itself). The statistical population of conceptual modeling section includes three public organizations of Iran: "State Welfare Organization," "Department of Environment," and "Ministry of Cooperatives, Labor and Social Welfare," which reflect the pivotal SD concepts of society, environment, and hence social economy, respectively. After setting a conceptual framework, the preliminary conceptual model was formed accordingly. Each path on the model was equal to a hypothesis. Finally, a statistically significant SD-based conceptual model of social entrepreneurship, which passed goodness-of-fit by *Coefficient of Determination (R<sup>2</sup>)* was presented.

**Keywords:** Social Entrepreneurship (SE), Sustainable Development (SD), Conceptual Model.

پژوهش حاضر پژوهشی «اکتشافی-پیمایشی» است. در این پژوهش از پنج پرسشنامه (چهار پرسشنامه در مراحل دلفی و یک پرسشنامه در بخش پیشنهاد الگوی مفهومی) بهره برده شده است. «سازمان بهزیستی»، «سازمان حفاظت محیط زیست»، و «وزارت کار، رفاه و امور اجتماعی» که با توجه به مأموریت‌های سازمانیشان بازتاب دهنده کامل‌تری از سه مفهوم بنیادین توسعه پایدار یعنی اجتماع، محیط زیست و اقتصاد اجتماعی در بخش دولتی بودند، جامعه آماری جهت پیشنهاد الگوی مفهومی را تشکیل دادند. شیوه به کار برده شده جهت پیشنهاد الگوی مفهومی روش «تحلیل مسیر» در قالب «رگرسیون چند متغیره» بوده است. جهت نائل شدن به الگوی مفهومی نهایی، ابتدا چارچوب مفهومی پژوهش و بر اساس آن در مرحله بعد الگوی مفهومی اولیه که در برگزیده فرضیات پژوهش بود شکل داده شد. سپس هر کدام از فرضیات پژوهش برابر با یک مسیر در نظر گرفته شد. با انجام روش تحلیل مسیر در فضای نرم افزار SPSS، مسیرهایی که از لحاظ آماری معنی دار نبودند حذف و باقی مسیرها الگوی مفهومی نهایی را تشکیل دادند. در آخرین مرحله جهت «برازش» الگوی مفهومی پیشنهاد شده، از «شاخص ضریب تعیین (R<sup>2</sup>) بهره برده شد. در پایان متغیرهای «افزودن به رفاه اجتماعی»، «افزودن به امید زندگی در اجتماع»، «کاربرد فناوری اجتماعی»، «زمان نوآوری اجتماعی صورت پذیرفته»، «وجود قوانین تشویقی و تنبیهی»، «هماهنگی با قوانین اجتماعی ملی و بین المللی» متغیرهای مستقل یا پیش بین و متغیرهای «عدالت اجتماعی»، «قابلیت زندگی»، «دارایی‌های اجتماعی سازمان‌های اجتماعی»، «کاهش آلودگی‌ها»، «مصرف متعادل منابع طبیعی» متغیرهای وابسته/ تاثیرپذیرنده ای بودند که از نظر علمی تایید و در الگوی مفهومی نهایی قرار گرفتند.

**واژه‌های کلیدی:** کارآفرینی اجتماعی، توسعه ی پایدار، الگوی مفهومی.

## Introduction

Development is a double-edged sword. Its mis-implementation could generate one blessing and simultaneously, sooner or later, thousand miseries for a country or community. The Middle East is one of the regions of the world which needs carefully chosen and scientifically and locally customized models and strategies to elevate the developmental conditions of its dwelling population politically, economically, ecologically and socially. No country is an exception. Any plan for the SD must embrace the aforementioned aspects (Magee et al., 2013) while we should not neglect culture (James et al., 2015) and public institutions (UN, 2014); otherwise, it will fall short and leads to catastrophe. East or West, North or South, countries of the world are the constituting pieces of the same jigsaw puzzle. Miseries or blessings could spill over from one region to the other. SD of each country or region is a harbinger of a better future for the whole humanity and vice versa. We are riding on the same planet. Concerning Iran (formerly Persia, a country in Western Asia with a growing population of over 81 million, at the heart of the Middle East, and on the shore of the Persian Gulf) mainly social, environmental and economic indices of SD call for new models for SD planning. Therefore, the present study - as a step toward how SE as a social value generator (Townsend & Hart, 2008) is also able to generate SD—was carried out. Hence, the research question is:

What variables should be included in the conceptual model of social entrepreneurship for the sustainable development of Iran?

## Literature Review

As an exploratory study, the research started with studying the literature on both SE and SD.

### Social entrepreneurship literature

“Social entrepreneurship is a socially

mission-oriented innovation which seeks beneficial transformative social change by creativity and recognition of social opportunities in any sectors” (Forouharfar et al., 2018). Venkataraman (1997) believes all entrepreneurship is social since it usually leads to job generation, tax payment, and new technologies and markets. SE could happen within public or private sectors by mixing business models with social impacts (Austin et al., 2006) or form its exclusive sector known as the third sector. Its generated social value relieves a single or a bundle of social pain(s) such as poverty, starvation, illiteracy, human rights violation, natural environment damages, etc. (Mair & Noboa, 2005). Furthermore, it brings about positive social results (Prabhu, 1999), social benefits (Fowler, 2000), social capitals (Morse & Dudley, 2002), social returns on investment (The Institute for Social Entrepreneurs, 2002), as different manifestations of social values (Dees, 1998). Social predicaments elicit SE behaviors (Waddock & Post, 1991) which should be customized with the idiosyncrasies of each community, society, or country (Rowshan & Forouharfar, 2014). Therefore, according to Cornwall (1998), social entrepreneurs are the “building blocks” of their societies for progress and improvement. Generally, SE could be:

1) Social value maker (Nicholls, 2006; Dees, 1998; Hibbert *et al.*, 2002; Austin *et al.*, 2006; Alvord *et al.*, 2004; Mort *et al.*, 2003; Saravathy & Wicks, 2003; Peredo & McLean, 2006; Townsend & Hart, 2008; Martin, 2004).

2) Innovative (Schumpeter, 1951; Drucker, 1985; Nijkamp, 2003; Lumpkin & Dess, 1996; Morris & Kuratko, 2002; Kuratko *et al.*, 2005; Zakić *et al.*, 2008; Miller & Friesen, 1982; Covin & Miles, 1999; Burgelman, 1984; Kanter, 1985; Alterowitz, 1988; Naman & Slevin, 1993; Zahra & Covin, 1995; Rwigema & Venter, 2004; Slater & Narver, 2000; Smart & Conant, 1994; Ussahawanitchakit, 2007; Osman *et al.*, 2011;

Salarzahi & Forouharfar, 2011).

3) Opportunity seeker (Christiansen, 1997; Ferreira, 2002; Timmons & Spinelli, 2003; Rwigema & Venter, 2004; Kuratko & Hodgetts, 1995; Simon, 1996; Ireland *et al.*, 2003; Miles & Snow, 1978; Stevenson *et al.*, 1989; Berthon *et al.*, 2004; Amabile, 1997; Gilad, 1984; Timmons, 1978; Ward, 2004; Whiting, 1988).

4) Social changer (Nicholls & Cho, 2006; Prabhu, 1999 Hoffman *et al.*, 2010; Choi & Gray, 2008; Cohen & Winn, 2007; Waddock & Post, 1991; Stryjan, 2006; Picot, 2012).

5) Value maker by bricolage (Stevenson *et al.*, 1989; Schumpeter, 1934, Seelos & Mair 2004).

6) Social welfare generator (Bugg-Levine *et al.*, 2012; Scheuerle *et al.*, 2013; Alvord *et al.*, 2004; Battilana, *et al.*, 2012; Haigh & Hoffman, 2012; Weisbrod, 1977).

7) Social result producer (Dees, 1998; Thake & Zadek, 1997 Emerson & Twersky, 1986).

### Sustainable Development Literature

SD is analogous to a building with social, environmental, and economic pillars on a cultural foundation (Seers, 1969). The constituting variables of these pillars, which are also used in this research, are as the following:

1) Sustainable society: (a) equity (Eizenberg & Jabareen, 2017; Jabareen, 2008; Rpetto, 1985); (b) livability (Wheeler, 2013; Goldman & Gorham, 2006; Evans, 2002; Godschalk, 2004); (c) social development (Drexhage & Murphy, 2010; Osberg, 1992; Gray, 2006); (d) social capital (Burnett, 2009; Ite, 2007; Osberg, 1992); (e) human rights (Martens, 2006; McGregor, 2002); (f) social justice; and (g) appropriate urban planning (Woodcraft, 2012).

2) Sustainable social economy: (a) social assets of community organizations (Restakis, 2015; Elson, *et al.*, 2015); (b) social enterprises (Borzaga & Defourny, 2004; Defourny & Nyssens, 2008; Amin *et al.*, 2002); (c) social financing organizations

(Karaphillis *et al.*, 2010; Birkhölzer, 2009)

3) Sustainable environment: (a) balanced consumption of natural resources (Daly, 1990; Costanza & Daly, 1992); (b) pollution reduction (Dincer, 2000); (c) natural capital (Costanza & Daly, 1992; Brand, 2009; Jansson, 1994); (d) ecologies' preservation (Rees, 1990; Pearce, 1988).

At the end of the literature review for the disambiguation of the possibility of a relationship between SE and SD, it would be noteworthy to accentuate that the two phenomena share many overlapping concepts. In other words, the main arenas of SD such as economy, society, and natural environment could also be seen in SE, which is inherently an economic theory and it could be active in all the above-mentioned arenas (Stenn, 2016). E.g., in natural environment training in Iran "Parto Social Entrepreneurship School"<sup>1</sup> Is a good example. Moreover, the most prominent aspect of SE, social responsibility affects SE (Khosravi, 2019). In sum, we can make a relationship between SE and SD (Pirmohammadi *et al.*, 2017; Divansalar & Bozorgi, 2012).

### Methodology

The research aim is the presentation of a conceptual model connecting the SE and SD concepts in the public sector in Iran. Based on this aim, the research is descriptive research. Since the data collection of the research uses a questionnaire, it is a survey study, too. Moreover, by considering the definition of exploratory research as "an endeavor to decide whether a phenomenon is or is not?" (Parhizgar & Afrouzi, 2011), presentation of a conceptual model between an under-theorized relationship of SE and SD also puts this research among exploratory studies. The methodological steps are unfolded in the following:

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<sup>1</sup> <https://partoschool.org/>

**Table 1.** Average values of each Delphi Round.

N o.	SE Variables	Average Values			
		1 <sup>st</sup> Round	2 <sup>nd</sup> Round	3 <sup>rd</sup> Round	4 <sup>th</sup> Round
1	Social result generation <sup>1</sup>	0.26	0.3 (omitted)	-	-
2	Social welfare generation <sup>2</sup>	0.36	0.4 (omitted)	-	-
3	Value making by bricolage (a new combination of resources) <sup>3</sup>	0.13 (omitted)	-	-	-
4	Social change <sup>4</sup>	0.4	0.36 (omitted)	-	-
5	Opportunity seeking <sup>5</sup>	0.66	0.56	0.4 (omitted)	-
6	Social innovation <sup>6</sup>	0.83	0.86	0.8	0.93
7	Social capital generation <sup>7</sup>	0.46	0.4	0.36 (omitted)	-
8	Social value <sup>8</sup>	0.76	0.8	0.83	0.86
9	Social return on investment <sup>9</sup>	0.06 (omitted)	-	-	-
10	Social job generation <sup>10</sup>	0.5	0.53	0.4 (omitted)	-
11	Social responsibility <sup>11</sup>	0.86	0.9	0.93	0.96
12	Alleviation of social sufferings and deprivations <sup>12</sup>	0.6	0.53	0.5 (omitted)	-
13	Social culture <sup>13</sup>	0.93	0.9	0.93	0.93
14	Social enterprises establishment <sup>14</sup>	0.26 (omitted)	-	-	-
15	Socially creative ideas generation <sup>15</sup>	0.3	0.33 (omitted)	-	-
16	Social mission <sup>16</sup>	0.2 (omitted)	-	-	-

(Source: Authors' own work)

1 (Dees, 1998; Thake &amp; Zadek, 1997; Emerson &amp; Twersky, 1986)

2 (Bugg-Levine *et al.*, 2012; Scheuerle *et al.*, 2013; Alvord *et al.*, 2004; Batilana *et al.*, 2012; Haigh & Hoffman, 2012; Weisbrod, 1977)3 (Stevenson, *et al.*, 1989; Schumpeter, 1934, Seelos & Mair, 2004)4 (Nicholls & Cho, 2006; Prabhu, 1999; Hoffman, *et al.*, 2010; Choi & Gray, 2008; Cohen & Winn, 2007; Waddock & Post, 1991; Stryjan, 2006; Picot, 2012)5 (Eckhardt & Shane, 2003; Christiansen, 1997; Ferreira, 2002; Timmons & Spinelli, 2003; Rwigema & Venter, 2004; Kuratko & Hodgetts, 1995; Simon, 1996; Ireland, *et al.*, 2003; Miles & Snow, 1978; Stevenson, *et al.*, 1989; Berthon, *et al.*, 2004; Amabile, 1997; Gilad, 1984; Timmons, 1978; Ward, 2004; Whiting, 1988)6 (Schumpeter, 1951; Drucker, 1985; Herbert & Link, 1989; Nijkamp, 2000; Galindo & Mendez, 2008; Covin & Slevin, 1991; Lumpkin & Dess, 1996; Morris & Kuratko, 2002; Kuratko, *et al.*, 2005; Zakić, *et al.*, 2008; Miller & Friesen, 1982; Covin & Miles, 1999; Burgelman, 1984; Kanter, 1985; Alterowitz, 1988; Naman & Slevin, 1993; Zahra & Covin, 1995; Rwigema & Venter, 2004; Slater & Narver, 2000; Smart & Conant, 1994; Ussahawanitchakit, 2007; Salarzahi & Forouharfar, 2011)

7 Morse &amp; Dudley (2002)

8 (Nicholls, 2006; Dees, 1998; Hibbert, *et al.*, 2002; Austin, *et al.*, 2003; Alvord, *et al.*, 2004; Mort, *et al.*, 2003; Sarasvathy & Wicks, 2003; Peredo & McLean, 2005; Townsend & Hart, 2008)

9 The Institute for Social Entrepreneurs (2002)

10 Venkataraman (1997)

11 Dees (2017)

12 Cornwall (1998); Mair &amp; Noboa (2005)

13 Ferri, *et al.* (2015)

14 Venkataraman (1997)

15 Iyengar (2014)

16 Dees (2017)

**Delphi Section**

The study’s goal is the conceptualization of SD-based social entrepreneurship in theory (conceptual modeling). It started with the abovementioned literature review on SE, SD, and idiosyncratic social problems of the case. Afterward, the exploratory nature of the study called for semi-structured interviews with Delphi’s panel of experts based on the acquired library-studied variables of SD and SE. The result was the designing of the first-round Delphi questionnaire. Then, a six-step procedure was pursued systematically for the accomplishment of a *Delphi Method* to acquire the most relevant SE variables for SD as the following:

- 1) Delphi survey questionnaire designing (with only 16 variables of SE).
- 2) Delphi sampling (hence, snowball sampling).
- 3) Decision making on the number of members on the panel of experts (hence, 30 professors in 5 six-member homogeneous groups familiar with social issues, with each group’s areas of expertise only on one field: management, natural environment, social affairs, cultural issues, and economics).
- 4) Formation of a panel of experts.
- 5) Survey accomplishment (hence, four rounds: in each round 4 variables, which had the least average value through the *Likert Scale*, were omitted to lead to the panel’s saturation of ideas for ultimate consensus, Table 1).

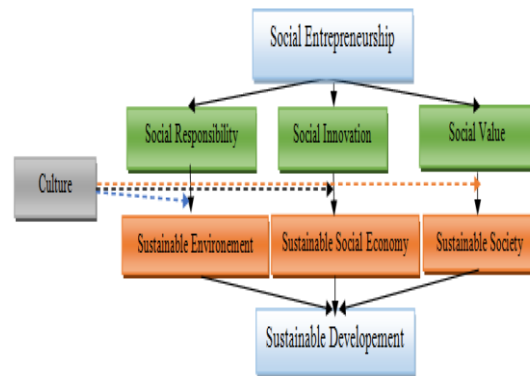
**Data classification.**

The SE variables relevant to SD, which successfully passed the 4-round Delphi process, were: (1) social innovation; (2) social value; (3) social responsibility; and (4) social culture.

**Research Hypotheses and Conceptual Framework**

The hypotheses of the research (Table 2) presume the potential impacts of “social

innovation” on “sustainable social economy”, “social value” on “sustainable society”, “social responsibility” on “sustainable environment” and “culture”, which is mutual between SE and SD was presumed as a moderating variable based on Seers (1969) (Figure 1).



**Figure 1.** Conceptual Framework of the Research (Source: Authors’ own work)

**Table 2.** Study’s main hypotheses

Hypotheses
<b>H<sub>1</sub>:</b> "Social value" has a positive impact on "sustainable society."
<b>H<sub>2</sub>:</b> "Social innovation" has positive impact on "sustainable social economy".
<b>H<sub>3</sub>:</b> "Social responsibility" has positive impact on "sustainable environment".
<b>H<sub>4</sub>:</b> "Culture" has a moderating role between "social value" and "sustainable society."
<b>H<sub>5</sub>:</b> "Culture" has a moderating role between "social innovation" and "sustainable social economy."
<b>H<sub>6</sub>:</b> "Culture" has a moderating role between "social responsibility" and "sustainable environment."

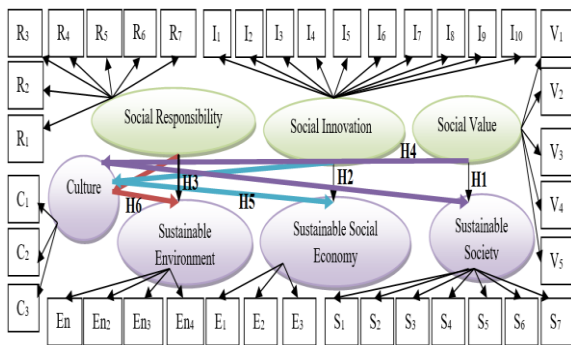
(Source: Authors’ own work)

In the next step, the constructs of the abovementioned seven variables were determined by library study to design a questionnaire with seven variables and 39 constructs. Table 3 and Figure2 present the variables’ constructs.

**Table 3.** Briefing of the study variables and their constructs

Variable type	Association
I. Independent Variables (Latent Variables)	Social Entrepreneurship
Social Value	
Social Innovation	
Social Responsibility	
II. Dependent Variables (Latent Variables)	Sustainable Development
Sustainable Society	
Sustainable Environment	
Sustainable Social Economy	Social Entrepreneurship & Sustainable Development
III. Moderating Variable	
Culture	
IV. Observed Variables (Constructs)	
V <sub>1</sub> : Unsatisfied Social Needs	Social Value
V <sub>2</sub> : Social Justice	
V <sub>3</sub> : Social Problem Solving	
V <sub>4</sub> : Social Welfare Increase	
V <sub>5</sub> : Social life expectancy increase	
I <sub>1</sub> : Social Technology Use	Social Innovation
I <sub>2</sub> : Social Innovators	
I <sub>3</sub> : Social Technology Availability	
I <sub>4</sub> : Awareness of needy people from social innovation	
I <sub>5</sub> : Discovery of new ways of dealing with social affairs	
I <sub>6</sub> : Innovative solution or healing of social problems	
I <sub>7</sub> : Empowerment of the socially harmed by new ways	
I <sub>8</sub> : Capability in upgrading the previous social technologies	
I <sub>9</sub> : Scaling up social innovations	
I <sub>10</sub> : Social Innovation Timing	
R <sub>1</sub> : Company's Social Mission	Social Responsibility
R <sub>2</sub> : Regulations	
R <sub>3</sub> : Voluntary Service	
R <sub>4</sub> : Compatibility with international and national laws	
R <sub>5</sub> : Social benefiting commitment	
R <sub>6</sub> : Decision making based on "society first."	
R <sub>7</sub> : public awareness contribution	
C <sub>1</sub> : Culture's moderating effect between "social innovation" and "sustainable social economy."	The moderating function of "Culture" between Social Entrepreneurship & Sustainable Development
C <sub>2</sub> : Culture's moderating effect between "social responsibility" and "sustainable environment."	
C <sub>3</sub> : Culture's moderating effect between "social value" and "sustainable society."	
E <sub>1</sub> : Social assets of community organizations	Sustainable Social Economy
E <sub>2</sub> : Social Enterprises	
E <sub>3</sub> : Social Financing Organizations	Sustainable Environment
En <sub>1</sub> : Balanced consumption of natural resources	
En <sub>2</sub> : Pollution Reduction	
En <sub>3</sub> : Natural Capital	
En <sub>4</sub> : Ecologies' Preservation	Sustainable Society
S <sub>1</sub> : Equity	
S <sub>2</sub> : Livability	
S <sub>3</sub> : Social Development	
S <sub>4</sub> : Social Capital	
S <sub>5</sub> : Human Rights	
S <sub>6</sub> : Social Justice	
S <sub>7</sub> : Urban Planning	

(Source: Authors' own work)



**Figure 2.** The constructs of the variables in the initial conceptual model  
(Source: Authors' own work)

### Questionnaire's Validity and Credibility

Two types of validities were studied with respect to the conceptual modeling questionnaire:

1) *Construct Validity*, which refers to the degree that a concept should be operationalized to be succeeded in the measurement of that concept according to the research hypotheses. This type of validity should measure the constituting entities of the concept (*Convergent Validity*) and should be alienated with the irrelevant entities (*Discriminant Validity*). For the *Convergent Validity*, each one of the questions on the questionnaire was checked to be concept-related and convergence maker. On the other hand, for the *Discriminant Validity* of the questionnaire, the literature on SE and SD were reviewed once more to reassure that the group of questions, which measured one variable was distinguishable and recognizable from the other, as well as to be defendable based on the reviewed literature.

2) *Content Validity*, as a non-statistical validity embraces a systematic study of the content and constituting entities of the research test to determine whether the test and its constituting entities could measure all the aspects of the concept or behavior in the population (Anastasi & Urbina, 1997). For the implementation of this validity, the authors, based on the experts of the Delphi panel's

field of expertise asked them to study the questions and help them out in modifying or omitting potentially inappropriate questions. In the next step, 30 valid questionnaires were distributed among the sample to evaluate the questionnaire's credibility by *Cronbach's Alpha*. The value range is between 0-1. The calculated *Cronbach's Alpha Coefficient* was 0.8, which is statistically an acceptable value (Table 4). Finally, the researchers acquired a valid and credible questionnaire for large-scale distribution among the study sample to carry out their exploratory study.

**Table 4.** Calculated *Cronbach's Alpha* for the conceptual model questionnaire

Questionnaire Type	Research Section	Cronbach's Alpha
Conceptual Model	Conceptual Modeling Section	0.8

(Source: Authors' own work)

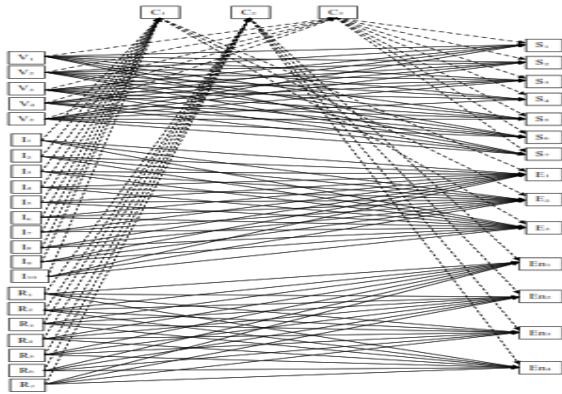
### SAMPLING and Statistical Test

The statistical population of the research consisted of three Iranian governmental organizations, which are mostly dealing with the SD-related concepts, including *State Welfare Organization of Iran (Behzisti)*, *Department of Environment*, and *Ministry of Cooperatives, Labor and Social Welfare*, all based in Shiraz city — based on Krejcie & Morgan's (1970) sampling table by simple random sampling 785 persons were chosen to have participated in the survey.

### Path Analysis and Hypotheses Testing

This research has six major and 129 minor hypotheses (paths) (Figure 3). Each minor hypothesis is equal to one potential path. The exploratory nature of the research justifies the number of minor hypotheses. Moreover, the research has applied *Multiple Regression Method* for the *Path Analysis*. Therefore, according to the *Standardized Coefficients* ( $\beta$ ) for each path/hypothesis within the *Significance Level* ( $\alpha$ ) equals to 0.05 and by considering the *Rejection Region*, if  $p\text{-value} \leq$

0.05, then *Null Hypothesis* ( $H_0: \beta = 0$ ) was rejected, and the *Alternative Hypothesis* ( $H_a: \beta \neq 0$ ) was accepted. Accepting the *Alternative Hypothesis* was equal to keeping the path. Otherwise, the path was deleted.



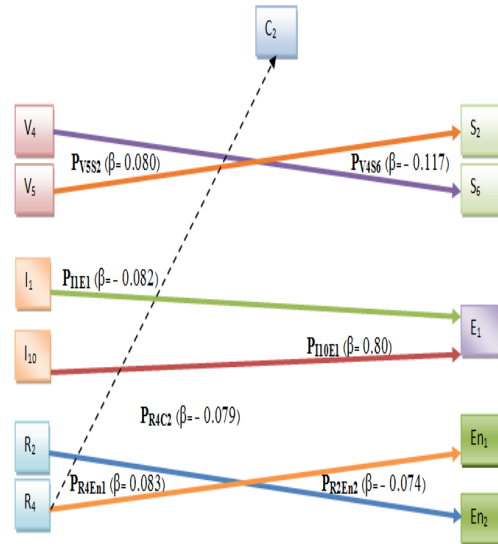
**Figure 3.** 129 Minor hypotheses/paths before path analysis (unfolding the conceptual research framework)  
(Source: Authors' own work)

## Results and Discussions

The result of the hypotheses testing was the acceptance of seven minor hypotheses ( $H_{1-27}$ ,  $H_{1-30}$ ,  $H_{2-1}$ ,  $H_{2-28}$ ,  $H_{3-6}$ ,  $H_{3-13}$ , and  $H_{6-4}$ ). The acceptance of these hypotheses was the verification of the paths  $P_{V5S2}$ ,  $P_{V4S6}$ ,  $P_{I1E1}$ ,  $P_{I10E1}$ ,  $P_{R4En1}$ ,  $P_{R2En2}$  and  $P_{R4C2}$ , which verifies the impacts of “social life expectancy increase” on “livability”, “social welfare increase” on “social justice”, “social technology use” on “social assets” of community organizations”, also “timing of social innovation” on “social assets” of community organizations”, “compatibility with national and international regulations” on “balanced consumption of natural resources”, “regulations” on “pollution reduction”, and finally “compatibility with national and international regulations” on “culture” respectively.

Based on the  $\beta$  Coefficient and Significance Level, which culminated in the acceptance or rejection of the hypotheses, the former 129-path model after *Path Analysis' hypotheses testings* was reduced to a 7-path one (Figure 4). It is noteworthy that each path is dawn

according to its counterpart hypothesis; moreover, the values of  $\beta$  Coefficients were presented in their relevant ways.



**Figure 4.** Verified paths through path analysis before a goodness-of-fit test

In the next step for the estimation of the model's *Goodness-of-Fit*, *Coefficient of Determination*, known as *R-Square* ( $R^2$ ), was calculated (Table 5). This index is one of the key outputs of regression calculation, which is between 0 to 1. If the *Coefficient of Determination* equals 0, then it should be interpreted that the dependent variable could not be predicted by the independent variable, and if it equals 1, then it means that the dependent variable is predictable from the independent one without any errors. Generally, a high value of  $R^2$  means the designed model is fit to the data, although the interpretations of fitness depending on the content of analysis (Encyclopedia Britannica, 2018). To increase the predictability power of the model, it was assumed that the SE model intended for the sustainable development of the country should predict at least 0.005 of variance in the dependent variables. Therefore, the paths with lower *R-Squares* than 0.005 were omitted from the model. Thus,  $P_{R4C2}$  ( $R^2 = 0.004$ ) was omitted, and the finalized SE model with 11 variables and six



paths was presented in Figure 5.

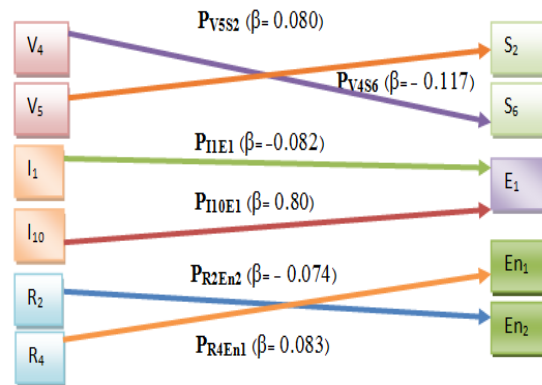
**Table 5.** The result of the remained paths' *R-Square* calculations

No.	Path	R <sup>2</sup>	Interpretation
1	$P_{V5S2}$	0.006	0.006 of variance in the dependent variable ( $S_2$ ) is predictable from the dependent/predicting variable ( $V_5$ ) in the model.
2	$P_{V4S6}$	0.015	0.015 of variance in the dependent variable ( $S_6$ ) is predictable from the dependent/predicting variable ( $V_4$ ) in the model.
3	$P_{I1E1}$	0.014	0.014 of variance in the dependent variable ( $E_1$ ) is predictable from the dependent/predicting variable ( $I_1$ ) in the model.
4	$P_{I10E1}$	0.014	0.014 of variance in the dependent variable ( $E_1$ ) is predictable from the dependent/predicting variable ( $I_{10}$ ) in the model.
5	$P_{R4En1}$	0.006	0.006 of variance in the dependent variable ( $En_1$ ) is predictable from the dependent/predicting variable ( $R_4$ ) in the model.
6	$P_{R2En2}$	0.005	0.005 of variance in the dependent variable ( $En_2$ ) is predictable from the dependent/predicting variable ( $R_2$ ) in the model.
7	$P_{R4C2}$	0.004	0.004 of variance in the dependent variable ( $C_2$ ) is predictable from the dependent/predicting variable ( $R_4$ ) in the model.

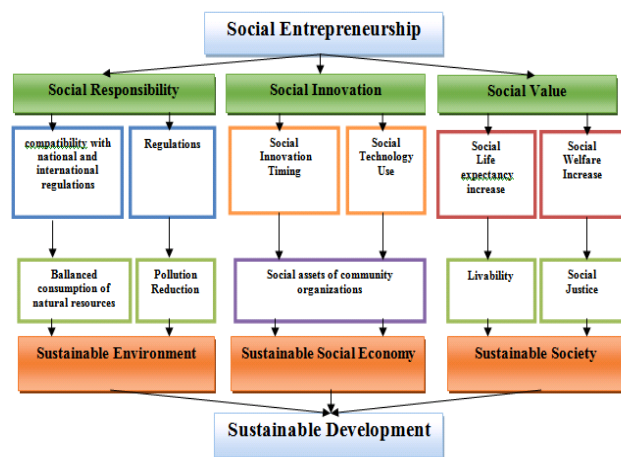
(Source: Authors' own work)

Finally, Figure 6 shows the verified and fitted model of social entrepreneurship for national sustainable development promotion by the public sector. The paths  $P_{V5S2}$ ,  $P_{V4S6}$ ,  $P_{I1E1}$ ,  $P_{I10E1}$ ,  $P_{R4En1}$ , and  $P_{R2En2}$  verify the impacts of

“social life expectancy increase” on “livability”, “social welfare increase” on “social justice”, “social technology use” on “social assets’ of community organizations”, also “social innovation timing” on “social assets’ of community organizations”, “compatibility with national and international regulations” on “balanced consumption of natural resources”, and finally “regulations” on “pollution reduction”, respectively; i.e. statistically the variance in the five dependent variables are predictable by the six independent/predicting variables of the conceptual model.



**Figure 5.** Verified paths through path analysis after the goodness-of-fit test



**Figure 6.** Ultimate Social entrepreneurship conceptual model for Iran's sustainable development promotion.

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