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Appendices

The list of Appendices consists of ten parts as given below.

Appendix A: From Codes to Categories

Appendix B: Invitation Letter to Participate in a Research

Appendix C: The Measurement Instrument (Questionnaire)

Appendix D1: Correlation Matrix of Two Supports by Business Incubator Scales and Innovation Strategy

Appendix D2: Correlation Matrix of Two Moderators

Appendix E1: Results of Kaiser's Criterion for Independent Variables

Appendix E2: Results of Kaiser's Criterion for Moderators

Appendix F: Syntax to Perform Parallel Analysis in SPSS

Appendix G: Residual Plots of The Variables Used in the Regression Analysis

Appendix H: Results of Common Method Bias

APPENDIX A: FROM CODES TO CATEGORIES

Appendix A presents the 36 codes obtained from interviews with entrepreneurs, and classifies them into the five different categories.

No.	Codes	Categories
1	Attract big cooperation and companies by incubator	Access to the networks
2	Partnership	
3	Cooperation with different well-known companies by incubator	
4	networks of incubators	
5	Strong communication of the incubator	
6	Get relationship with big companies by NTBF	
7	Interaction with university	
8	Reaching customers by NTBF	
9	Meeting Potential Customers/VS/Advisors	
10	Synergy	
11	Meetups/events	
12	Engagement	
13	Brand visibility	Creation of exposure
14	Reputation/ credibility	
15	Increase awareness about NTBF's brand, product, service	
16	Being present in the incubators' social media	
17	Knowledge creation	Knowledge development and dissemination
18	Learning from other startups	
19	Advisory / coaching	
20	Access to a default platform for legal issues	
21	Knowledge diffusion and development	
22	Develop personal skills	
23	Interactive Training	
24	Mentoring	
25	Evaluate the progress	Growth control
26	Evaluate the problems	
27	Monitoring	
28	Set Milestones by incubator	
29	Get loan	Finance and administrative mobilization
30	Fundraising	
31	Venture Capital	
32	Financial sponsor	
33	Facilities	
34	IT infrastructure	
35	Place to work	
36	Administrative Services	

APPENDIX B: INVITATION LETTER TO PARTICIPATE IN A RESEARCH

Appendix B shows the invitation letter of the survey for the entrepreneurs. This letter addresses the objective of the survey.

Universiteit Leiden

Dear Founder and Entrepreneur.

I invite you to participate in a research study entitled "Business Incubators: How effective are they?"

I am Negin Samaee a Ph.D. candidate in the field of Innovation Management in Leiden University. The purpose of the research is to determine the effect of the supports by business incubators or accelerators on the performance of startups. The enclosed questionnaire has been designed to collect information on the founder's opinion on the received support by business incubators. Your participation in this research project is completely voluntary. Your responses will remain confidential and anonymous. Data from this research will be kept and reported only as a collective combined total. No one other than the researchers will know your individual answers to this questionnaire.

If you agree to participate in this project, please answer the questions on the questionnaire as best you can. It should take approximately 10-15 minutes to complete. If you have any questions about this project, feel free to contact: n.samaeemofrad@liacs.leidenuniv.nl or to my LinkedIn account (Negin Samaee)

Thank you for your assistance in this important endeavor.

Sincerely yours,

Negin Samaeemofrad
Ph.D. Candidate, Leiden University

Prof. Jaap van den Herik
Graduate School of Mathematics
Leiden University

APPENDIX C: THE MEASUREMENT INSTRUMENT QUESTIONNAIRE

Appendix C demonstrates the questionnaire that we disseminated among entrepreneurs to collect data. The questionnaire gathers (1) general information from the participants (Q1-Q4) and information on the supports by BIs and the performance of the NTBFs (Q5-Q16).

Q1: Email:
Q2: Name of Business Incubator/Accelerator
Q3: Prior working experience:
- First working experience
- Consultant
- University and other R&D organizations
- High-Tech firm
- Others:

Q4: Graduate degree in:
- Computer science
- Mathematics
- Physics
- Chemistry
- Economics and Business
- Biology
- Others:

Q5: Number of Founders:

Q6: Please state the year of your firm's establishment (start to work)
Q7 What is the total number of employees in your team?
- Number of Full-Time Employees
- Part-Time Employees

Q8 How many employees do you increase since last year?
Q9 Please indicate the industry of your business.
- Computer and software industry (e.g., AI, Blockchain)
- Energy industry
- ICT
- Life science
- Healthcare and MedTech
- Manufacturing industry
- Robotics

Agriculture
General services
Aerospace and aviation industry
Complex technologies (e.g., Nanotech, CleanTech)
Others:

Q10 Please indicate whether or not your organization has a patented technology.
Yes / No

Q11 Has your firm produced one or more new products and/or services in the last two years?
Yes / No

Q12 Please assess the extent to which you agree or disagree with the following statements.

Statement	Strongly agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
(1) The technology and innovation behind our existing products and services need improvement.							
(2) We invest in the development of new technologies, patents, products and /or services that are completely new to our company.							
(3) We aim to develop new products or services.							
(4) We invent new products and/or services.							
(5) We intend to add small adaptations to existing products and/or services.							
(6) We regularly attempt to use optimize resources, as well as less time and less money in producing our existing products and/or services.							
(7) We regularly monitor our existing products and /or services to be aligned with customer needs.							
(8) We have plan to increase the amount of production and/or services in our existing markets.							
(9) Our company builds new distribution channels.							
(10) We regularly search for new approaches into new markets.							
(11) We utilize new opportunities in new markets.							
(12) Our company develops at least two new services each year for our existing clients.							
(13) We introduce improved our existing products and services for our existing market.							

Q13 Business incubators attempt to support their tenants via offering business-oriented training programs. Please indicate the extent to which you find them effective in the development of your business.

Statement	Extremely satisfied	satisfied	Slightly satisfied	Neither satisfied nor dissatisfied	Slightly dissatisfied	dissatisfied	Extremely dissatisfied
(1) Marketing strategy and sales management skills							
(2) Negotiation and communication skills							
(3) Business strategy and agile management							
(4) Human Resource Management							
(5) Financial statements, tax, contracts, protectability (Intellectual Property)							

Q14 Please indicate the extent to which you are satisfied or dissatisfied with the following support offered to your business.

Statement	Extremely satisfied	satisfied	Slightly satisfied	Neither satisfied nor dissatisfied	Slightly dissatisfied	dissatisfied	Extremely dissatisfied
(1) Adviser's availability							
(2) Adviser's expertise and experience							
(3) Organization of meetings with your adviser (duration, frequency, and efficiency)							
(4) There is a relationship based on trust. respect and compliance with a moral contract between you and your adviser.							
(5) Increase in self-confidence as a result of the advisory experience							
(6) Access to a more extensive targeted network of contacts due to the collaboration with an adviser							
(7) Achieve real, observable results for your business through the advisory process							
(8) Adviser offers guidance regarding your successes, failures and methods for improving your business practice							

Q15 Business incubators attempt to support their tenants via the access to different capital resources. How do you evaluate their fundraising attempts to get access to capital resources for your business?

Statement	Extremely satisfied	satisfied	Slightly satisfied	Neither satisfied nor dissatisfied	Slightly dissatisfied	dissatisfied	Extremely dissatisfied
(1) For governmental subsidy							
(2) For Venture Capital funds, Private investors							
(3) For philanthropy (donations)							
(4) For a loan from your business incubator							
(5) For strategic alliance or partnership with established firms							

Q16 Emphasis is on characteristics of your relationship between your firm and whoever (e.g., customers. users. advisers) from whom you may obtain or exchange new information or useful knowledge. Please indicate the degree of agreement or disagreement with the following statements.

Statement	Strongly agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
(1) Your firm has a close relationship with its customers that is characterized by mutual trust and respect							
(2) Our team is able to understand knowledge from outside our business focus or industry-niche							
(3) There are many informal conversations and formal meetings in our organization to discuss the development of our business practice							
(4) Our team publishes informative documents periodically (e.g., reports. bulletins)							
(5) When something important occurs. all members of our team are informed within a short time, and the knowledge is shared among all members of the organization							
(6) We frequently pivot our business based on the obtained knowledge from outside							

Q17 Please indicate the extent to which you rate yourself regarding your ability in raising capital.

Statement	Strongly agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
(1) I am able to evaluate to risk well							
(2) Our team has direct and relevant experience							
(3) Our customers easily adapt to our product							
(4) Our product is ready to market							
(5) People can NOT copy our product/ service							
(6) Our product meets customer needs							
(7) We have a realistic marketing plan							
(8) There is a large market for our product (Over 20 Million $)							

Q18 Regarding measuring the performance of your firm. please indicate to what extent you are satisfied with the following statements.

Statement	Extremely satisfied	satisfied	Slightly satisfied	Neither satisfied nor dissatisfied	Slightly dissatisfied	dissatisfied	Extremely dissatisfied
(1) Meet the planned milestones as scheduled							
(2) Able to achieve the defined business goals (excluding personal development and learning goals)							
(3) Developing my business and management skills							
(4) I am satisfied with the income							
(5) I am satisfied with the process of business development							

APPENDIX D1: CORRELATION MATRIX OF TWO SUPPORTS BY BUSINESS INCUBATOR SCALES AND INNOVATION STRATEGY

Appendix D1 describes the correlations between three measurement scales of the support by business incubators. These scales are: Innovation Strategy (Q1-Q12), Knowledge development (Q13-Q26), and finance mobilization (Q27-Q31).

Item	Q1	Q6	Q5	Q4	Q2	Q3-1	Q3-2	Q7	Q11	Q12	Q10	Q9	Q8	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31
Q1	1																															
Q6	.069	1																														
Q5	.035	**.345**	1																													
Q4	-.015	**.349**	.232	1																												
Q2	-.011	-.113	.122	-.115	1																											
Q3-1	-.043	-.022	.010	.008	.205	1																										
Q3-2	-.008	.140	.057	.123	**.329**	.299	1																									
Q7	.128	-.009	.092	.001	**.416**	**.319**	.251	1																								
Q11	.063	.087	-.094	.014	.236	.211	.205	**.354**	1																							
Q12	.016	.037	.105	.074	.128	.205	**.371**	.179	**.305**	1																						
Q10	.087	.210	**.365**	.051	.193	.174	.222	.172	**.422**	**.559**	1																					
Q9	-.110	.002	-.051	.260	.296	.167	.187	.146	.284	.231	.124	1																				
Q8	.043	-.017	.033	-.093	**.443**	.154	.184	**.411**	.292	.168	.150	**.420**	1																			
Q13	.200	.222	.238	.102	.058	-.076	.109	.004	-.029	.076	.104	-.073	.124	1																		
Q14	.247	.258	.162	.186	.027	-.088	.165	.035	.069	-.018	.101	-.076	.040	**.793**	1																	
Q15	.246	**.441**	.253	.117	.130	-.011	.102	.050	.112	.001	.238	-.110	.042	**.677**	**.682**	1																
Q16	**.362**	**.305**	.026	.091	.126	.091	.093	.232	.189	.032	.096	-.124	.200	**.523**	**.539**	**.666**	1															
Q17	.077	**.357**	.177	.085	.114	.059	.181	.180	.117	.111	.280	-.070	.096	**.545**	**.534**	**.560**	**.616**	1														
Q18	.147	.297	.157	.038	.127	.032	.104	.198	.215	.061	.277	-.028	.123	**.435**	**.425**	**.489**	**.534**	**.745**	1													
Q19	.244	**.378**	.215	.161	.075	.079	.133	.127	.105	.121	.228	-.145	-.027	**.492**	**.547**	**.652**	**.638**	**.701**	**.700**	1												
Q20	.241	**.393**	.285	.072	.192	.070	.158	.275	.080	.051	.173	-.166	.096	**.391**	**.424**	**.644**	**.669**	**.656**	**.585**	**.750**	1											
Q21	-.053	.209	-.046	.053	.111	-.103	.272	-.043	-.011	.028	-.092	.026	.009	.171	.192	.163	.264	.196	.145	.230	**.308**	1										
Q22	-.002	.103	.135	.092	.190	-.042	.274	-.044	-.053	.089	-.047	-.017	.025	.282	**.313**	.235	.253	.190	.158	.223	**.319**	**.654**	1									
Q23	.028	.230	.063	.032	.163	-.051	.195	-.053	.001	.030	-.019	-.046	.063	**.439**	**.394**	**.336**	**.326**	.272	.238	**.305**	**.345**	**.682**	**.745**	1								
Q24	.025	.171	.018	.141	.115	.035	.197	.073	.063	.132	-.030	.069	.133	**.310**	.296	.126	.208	.190	.134	.258	.259	**.618**	**.671**	**.636**	1							
Q25	.050	.025	.084	-.109	.204	.023	.106	.168	-.009	-.033	-.068	.032	.208	.254	**.322**	.116	.188	.144	.079	.186	.271	**.555**	**.522**	**.579**	**.637**	1						
Q26	-.099	.185	-.094	.130	-.133	-.154	-.022	-.057	-.066	-.094	-.154	.082	.041	.273	**.363**	.110	.210	.283	.198	.198	.138	**.587**	**.442**	**.479**	**.421**	**.416**	1					
Q27	.111	**.363**	.285	.111	.014	-.112	.038	.067	-.072	.127	.192	-.056	.010	.298	.253	.198	.240	.223	.156	**.309**	.296	**.314**	**.446**	**.404**	**.381**	**.352**	.216	1				
Q28	.205	.246	-.010	.078	.204	.027	.159	.197	.169	.117	.098	-.001	.081	.277	.257	**.320**	**.410**	.227	.220	**.356**	**.342**	**.364**	**.337**	**.381**	**.324**	.266	.159	**.522**	1			
Q29	.237	.243	-.088	-.147	.057	.045	.067	.014	.043	.036	.052	-.124	.146	.143	.097	.216	.233	.138	.078	.204	.189	.178	.130	.161	.295	.134	.070	**.404**	**.635**	1		
Q30	.108	.243	.101	-.008	.040	.044	.131	.146	-.115	.166	.022	-.010	-.027	.115	.127	.213	.201	.149	.150	.165	**.312**	.173	.254	.149	.111	.278	-.031	**.481**	**.427**	**.312**	1	
Q31	.201	**.488**	.146	.119	-.049	-.019	.118	.140	.132	.138	.262	-.152	-.026	**.339**	**.370**	**.417**	**.369**	**.323**	**.363**	**.423**	**.304**	.211	.280	**.341**	**.337**	.265	.133	**.589**	**.588**	**.542**	**.416**	1

APPENDIX D2: CORRELATION MATRIX OF TWO MODERATORS

Appendix D2 describes the correlations between two moderators. These scales are: Absorptive capacity (Q32-Q37), and Financial capability (Q38-Q45).

Items	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	Q43	Q44	Q45
Q32	1.													
Q33	**0.380**	1.												
Q34	**0.312**	**0.308**	1.											
Q35	0.263	-0.031	0.099	1.										
Q36	**0.342**	**0.410**	0.288	**0.336**	1.									
Q37	0.175	**0.338**	0.111	0.209	**0.310**	1.								
Q38	0.121	0.231	0.126	0.210	0.077	0.082	1.							
Q39	0.231	**0.310**	0.113	0.112	0.130	0.224	**0.512**	1.						
Q40	0.047	0.002	0.211	-0.053	-0.028	0.146	0.004	0.080	1.					
Q41	0.246	-0.119	0.121	0.066	-0.050	-0.107	-0.028	-0.005	0.140	1.				
Q42	0.122	0.111	0.168	0.045	0.283	-0.097	0.246	-0.007	0.115	0.222	1.			
Q43	0.229	0.257	0.297	-0.015	0.283	0.018	0.133	0.220	0.014	-0.025	0.260	1.		
Q44	**0.368**	0.127	0.115	0.121	0.224	0.067	0.024	0.135	**0.349**	**0.349**	0.296	0.277	1.	
Q45	0.078	0.223	0.114	0.104	**0.324**	0.086	0.244	0.125	0.119	-0.059	0.435	**0.333**	0.068	1.

APPENDIX E1: RESULTS OF KAISER'S CRITERION FOR INDEPENDENT VARIABLES

Appendix E1 describes the results of Principal Component Analysis with the Eigenvalues for Independent Variables.

	Initial Eigenvalues		
Component	Total	% of Variance	Cumulative %
1	**7.955**	**24.858**	**24.858**
2	**3.316**	**10.362**	**35.220**
3	**2.933**	**9.165**	**44.385**
4	**2.159**	**6.746**	**51.131**
5	**1.811**	**5.660**	**56.790**
6	**1.338**	**4.180**	**60.971**
7	**1.212**	**3.788**	**64.759**
8	**1.164**	**3.637**	**68.396**
9	**1.050**	**3.281**	**71.677**
10	.905	2.828	74.505
11	.859	2.685	77.191
12	.820	2.562	79.752
13	.702	2.194	81.947
14	.658	2.057	84.004
15	.636	1.988	85.992
16	.535	1.671	87.663
17	.497	1.554	89.217
18	.454	1.420	90.637
19	.357	1.115	91.752
20	.347	1.085	92.837
21	.323	1.010	93.847
22	.314	.981	94.828
23	.280	.875	95.703
24	.252	.789	96.492
25	.235	.733	97.225

26	.204	.639	97.864
27	.164	.512	98.376
28	.122	.383	98.758
29	.121	.377	99.135
30	.117	.365	99.500
31	.097	.303	99.803
32	.063	.197	100.000

APPENDIX E2: RESULTS OF KAISER'S CRITERION FOR MODERATORS

Appendix E2 describes the results of Principal Component Analysis with the Eigenvalues for Moderators Variables.

	Initial Eigenvalues		
Component	Total	% of Variance	Cumulative %
1	**3,284**	**23,458**	**23,458**
2	**1,684**	**12,027**	**35,484**
3	**1,452**	**10,374**	**45,858**
4	**1,231**	**8,789**	**54,648**
5	**1,190**	**8,502**	**63,150**
6	**1,017**	**7,267**	**70,417**
7	,861	6,147	76,564
8	,730	5,217	81,781
9	,581	4,151	85,932
10	,534	3,813	89,745
11	,446	3,188	92,933
12	,382	2,729	95,662
13	,306	2,187	97,848
14	,301	2,152	100,000

APPENDIX F: SYNTAX TO PERFORM PARALLEL ANALYSIS IN SPSS

In this appendix, the SPSS scripts for performing the Parallel Analysis are presented. The following article provides more information on the script: O'Connor. B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test, Behavior Research Methods, Instrumentation and Computers. 32. 396-402.

*** Parallel Analysis Program For Raw Data and Data Permutations.**

* To run this program, you need to first specify the data for analysis and then RUN, all at once, the commands from the MATRIX statement to the END MATRIX statement.

* This program conducts parallel analyses on data files in which the rows of the data matrix are cases/individuals and the columns are variables; Data are read/entered into the program using the GET command (see the GET command below); The GET command reads an SPSS data file. which can be either the current. active SPSS data file or a previously saved data file; A valid filename/location must be specified on the GET command; A subset of variables for the analyses can be specified by using the "/ VAR =" subcommand with the GET statement; There can be no missing values.

* You must also specify:

the # of parallel data sets for the analyses; the desired percentile of the distribution and random data eigenvalues; whether principal components analyses or principal axis/common factor analysis are to be conducted. and whether normally distributed

random data generation or permutations of the raw data set are to be used in the parallel analyses.

* Permutations of the raw data set can be time consuming;

Each parallel data set is based on column-wise random shuffling of the values in the raw data matrix using Castellan's (1992. BRMIC. 24. 72-77) algorithm; The distributions of the original raw variables are exactly preserved in the shuffled versions used in the parallel analyses; Permutations of the raw data set are thus highly accurate and most relevant. especially in cases where the raw data are not normally distributed or when they do not meet the assumption of multivariate normality (see Longman & Holden. 1992. BRMIC. 24. 493. for a Fortran version); If you would like to go this route. it is perhaps best to (1) first run a normally distributed random data generation parallel analysis to familiarize yourself with the program and to get a ballpark reference point for the number of factors/components; (2) then run a permutations of the raw data parallel analysis using a small number of datasets (e.g.. 100). just to see how long the program takes to run; then (3) run a permutations of the raw data parallel analysis using the number of parallel data sets that you would like use for your final analyses; 1000 datasets are usually sufficient. although more datasets should be used if there are close calls.

* These next commands generate artificial raw data (500 cases) that can be used for a trial-run of the program. instead of using your own raw data; Just select and run this whole file; However. make sure to delete the artificial data commands before attempting to run your own data.

```
set mxloops=9000 printback=off width=80  seed = 1953125.
matrix.
* Enter the name/location of the data file for analyses after "FILE =";
  If you specify "FILE = *". then the program will read the current.
  active SPSS data file; Alternatively. enter the name/location
  of a previously saved SPSS data file instead of "*";
  you can use the "/ VAR =" subcommand after "/ missing=omit"
  subcommand to select variables for the analyses.
GET raw / FILE = * / missing=omit / VAR = q1 to Q31.
* Enter the desired number of parallel data sets here.
compute ndatsets = 1000.
* Enter the desired percentile here.
compute percent  = 95.
* Enter either
  1 for principal components analysis. or
  2 for principal axis/common factor analysis.
compute kind = 1 .

* Enter either
  1 for normally distributed random data generation parallel analysis. or
  2 for permutations of the raw data set.
compute randtype = 1.

****************** End of user specifications. ******************
compute ncases   = nrow(raw).
compute nvars    = ncol(raw).

* principal components analysis & random normal data generation.
do if (kind = 1 and randtype = 1).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute realeval = eval(d * vcv * d).
compute evals = make(nvars.ndatsets.-9999).
loop #nds = 1 to ndatsets.
compute x = sqrt(2 * (ln(uniform(ncases.nvars)) * -1) ) &*
          cos(6.283185 * uniform(ncases.nvars) ).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:.#nds) = eval(d * vcv * d).
end loop.
end if.

* principal components analysis & raw data permutation.
```

```
do if (kind = 1 and randtype = 2).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute realeval = eval(d * vcv * d).
compute evals = make(nvars.ndatsets.-9999).
loop #nds = 1 to ndatsets.
compute x = raw.
loop #c = 1 to nvars.
loop #r = 1 to (ncases -1).
compute k = trunc( (ncases - #r + 1) * uniform(1.1) + 1 )  + #r - 1.
compute d = x(#r.#c).
compute x(#r.#c) = x(k.#c).
compute x(k.#c) = d.
end loop.
end loop.
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:.#nds) = eval(d * vcv * d).
end loop.
end if.
* PAF/common factor analysis & random normal data generation.
do if (kind = 2 and randtype = 1).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute cr = (d * vcv * d).
compute smc = 1 - (1 &/ diag(inv(cr)) ).
call setdiag(cr.smc).
compute realeval = eval(cr).
compute evals = make(nvars.ndatsets.-9999).
compute nm1 = 1 / (ncases-1).
loop #nds = 1 to ndatsets.
compute x = sqrt(2 * (ln(uniform(ncases.nvars)) * -1) ) &*
        cos(6.283185 * uniform(ncases.nvars) ).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute r = d * vcv * d.
compute smc = 1 - (1 &/ diag(inv(r)) ).
call setdiag(r.smc).
compute evals(:.#nds) = eval(r).
end loop.
end if.
* PAF/common factor analysis & raw data permutation.
```

```
do if (kind = 2 and randtype = 2).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute cr = (d * vcv * d).
compute smc = 1 - (1 &/ diag(inv(cr)) ).
call setdiag(cr.smc).
compute realeval = eval(cr).
compute evals = make(nvars.ndatsets.-9999).
compute nm1 = 1 / (ncases-1).
loop #nds = 1 to ndatsets.
compute x = raw.
loop #c = 1 to nvars.
loop #r = 1 to (ncases -1).
compute k = trunc( (ncases - #r + 1) * uniform(1.1) + 1 )  + #r - 1.
compute d = x(#r.#c).
compute x(#r.#c) = x(k.#c).
compute x(k.#c) = d.
end loop.
end loop.
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute r = d * vcv * d.
compute smc = 1 - (1 &/ diag(inv(r)) ).
call setdiag(r.smc).
compute evals(:.#nds) = eval(r).
end loop.
end if.
* identifying the eigenvalues corresponding to the desired percentile.
compute num = rnd((percent*ndatsets)/100).
compute results = { t(1:nvars). realeval. t(1:nvars). t(1:nvars) }.
loop #root = 1 to nvars.
compute ranks = rnkorder(evals(#root.:)).
loop #col = 1 to ndatsets.
do if (ranks(1.#col) = num).
compute results(#root.4) = evals(#root.#col).
break.
end if.
end loop.
end loop.
compute results(:.3) = rsum(evals) / ndatsets.
print /title="PARALLEL ANALYSIS:".
do if (kind = 1 and randtype = 1).
print /title="Principal Components & Random Normal Data Generation".
```

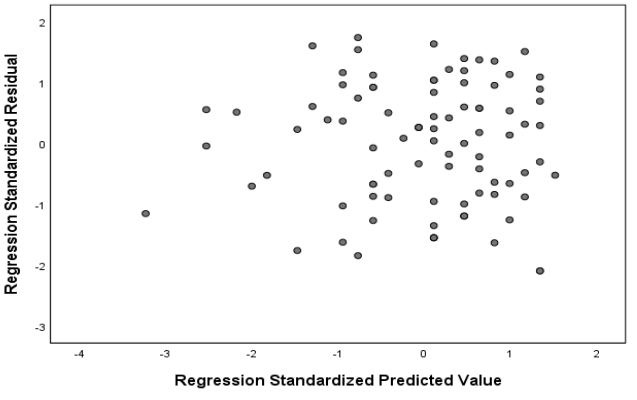
```
else if (kind = 1 and randtype = 2).
print /title="Principal Components & Raw Data Permutation".
else if (kind = 2 and randtype = 1).
print /title="PAF/Common Factor Analysis & Random Normal Data Generation".
else if (kind = 2 and randtype = 2).
print /title="PAF/Common Factor Analysis & Raw Data Permutation".
end if.
compute specifs = {ncases; nvars; ndatsets; percent}.
print specifs /title="Specifications for this Run:"
 /rlabels="Ncases" "Nvars" "Ndatsets" "Percent".
print results
 /title="Raw Data Eigenvalues. & Mean & Percentile Random Data Eigenvalues"
 /clabels="Root" "Raw Data" "Means" "Prcntyle"  /format "f12.6".
do if   (kind = 2).
print / space = 1.
print /title="Warning: Parallel analyses of adjusted correlation matrices".
print /title="eg. with SMCs on the diagonal. tend to indicate more factors".
print /title="than warranted (Buja. A.. & Eyuboglu. N.. 1992. Remarks on parallel".
print /title="analysis. Multivariate Behavioral Research. 27. 509-540.).".
print /title="The eigenvalues for trivial. negligible factors in the real".
print /title="data commonly surpass corresponding random data eigenvalues".
print /title="for the same roots. The eigenvalues from parallel analyses".
print /title="can be used to determine the real data eigenvalues that are".
print /title="beyond chance. but additional procedures should then be used".
print /title="to trim trivial factors.".
print / space = 2.
print /title="Principal components eigenvalues are often used to determine".
print /title="the number of common factors. This is the default in most".
print /title="statistical software packages. and it is the primary practice".
print /title="in the literature. It is also the method used by many factor".
print /title="analysis experts. including Cattell. who often examined".
print /title="principal components eigenvalues in his scree plots to determine".
print /title="the number of common factors. But others believe this common".
print /title="practice is wrong. Principal components eigenvalues are based".
print /title="on all of the variance in correlation matrices. including both".
print /title="the variance that is shared among variables and the variances".
print /title="that are unique to the variables. In contrast. principal".
print /title="axis eigenvalues are based solely on the shared variance".
print /title="among the variables. The two procedures are qualitatively".
print /title="different. Some therefore claim that the eigenvalues from one".
print /title="extraction method should not be used to determine".
print /title="the number of factors for the other extraction method.".
print /title="The issue remains neglected and unsettled.".
end if.
```

```
compute root      = results(:.1).
compute rawdata = results(:.2).
compute percntyl = results(:.4).
save results /outfile= 'screedata.sav' / var=root rawdata means percntyl .
end matrix.
* plots the eigenvalues. by root. for the real/raw data and for the random data.
GET file= 'screedata.sav'.
TSPLOT VARIABLES= rawdata means percntyl /ID= root /NOLOG.
```

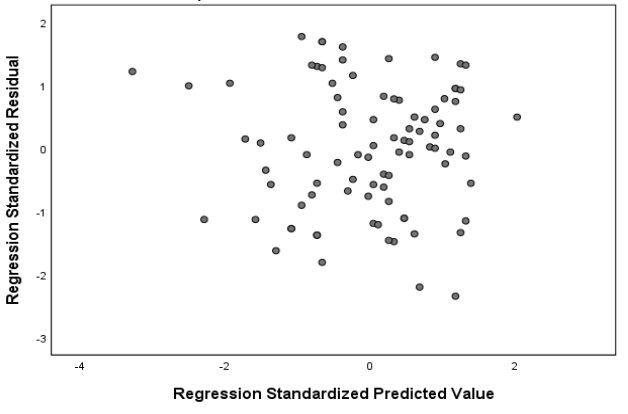
APPENDIX G: RESIDUAL PLOTS OF THE VARIABLES USED IN THE REGRESSION ANALYSIS

In this appendix, the residual plots are generated for three independent variables (innovation strategy, knowledge development and dissemination, and finance mobilization); one moderator (absorptive capacity); control variables (team size, NTBF's age, and the level of innovativeness); and the performance of the NTBFs as an independent variable. The plots use Standardized Residuals (Y-axis) and Standardized Predicted Value (X-axis). Below, the seven residual plots are depicted.

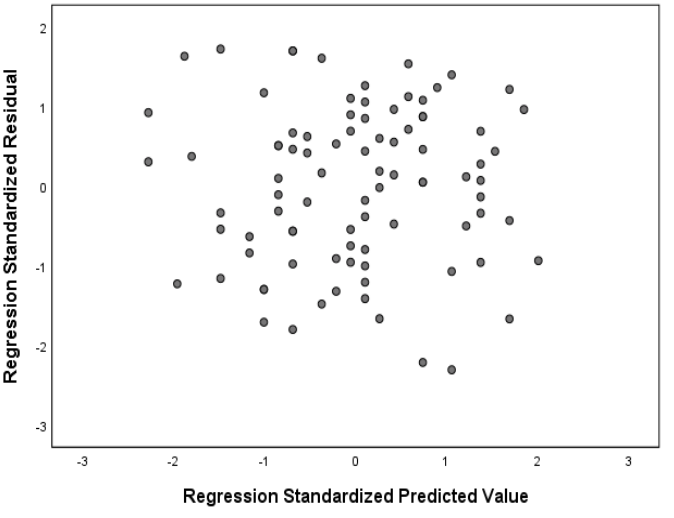
K1: Innovation Strategy on the Performance of the NTBFs



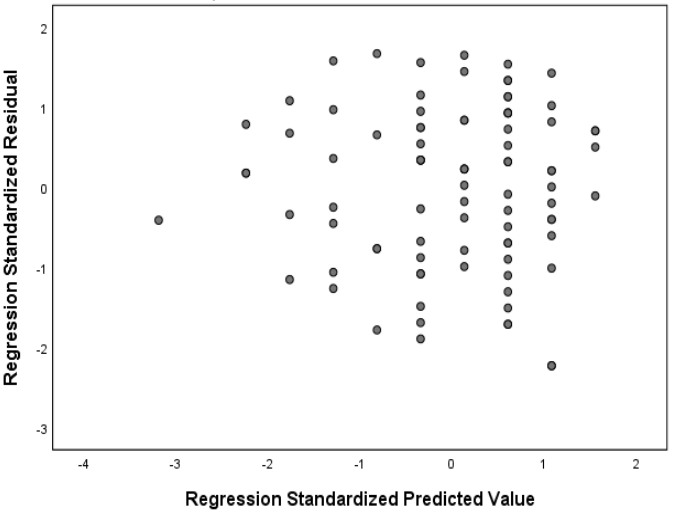
K2: Knowledge development and dissemination on the performance of the NTBFs



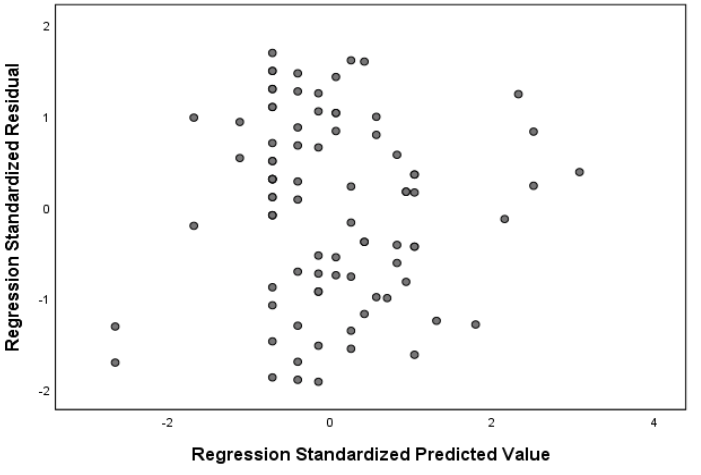
K3: Finance Mobilization on the Performance of the NTBFs



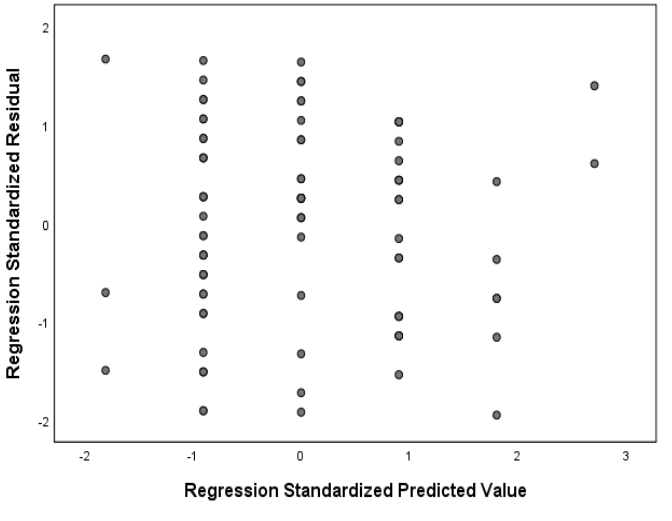
K4: Absorptive Capacity on the Performance of the NTBFs



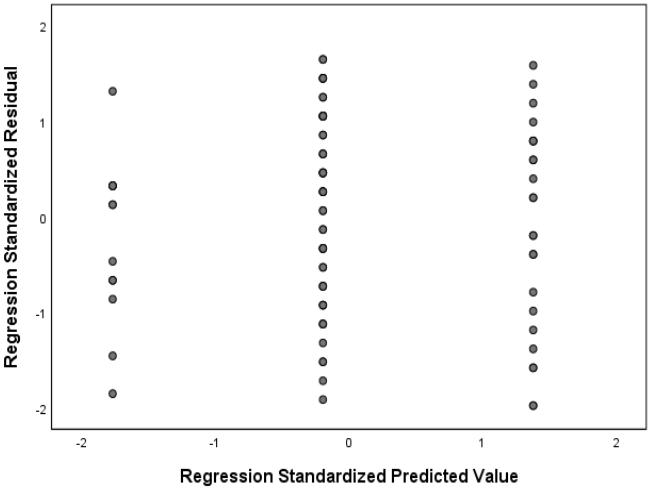
K5: The size of the NTBFs on the Performance of the NTBFs



K6: NTBF's Age on the performance of the NTBFs



K7: The Level of Innovativeness on the Performance of the NTBFs



APPENDIX H: RESULTS OF COMMON METHOD BIAS

Appendix H describes the results of Herman's Single Factor Test associated with common method bias.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9,381	18,393	18,393	9,381	18,393	18,393
2	4,119	8,076	26,469			
3	3,538	6,937	33,406			
4	3,194	6,263	39,669			
5	2,748	5,387	45,057			
6	2,115	4,146	49,203			
7	2,019	3,960	53,163			
8	1,846	3,619	56,782			
9	1,691	3,316	60,098			
10	1,538	3,016	63,114			
11	1,317	2,583	65,697			
12	1,276	2,501	68,198			
13	1,197	2,348	70,546			
14	1,178	2,311	72,857			
15	1,106	2,168	75,025			
16	,952	1,867	76,891			
17	,940	1,842	78,734			
18	,820	1,607	80,341			
19	,791	1,551	81,892			
20	,709	1,390	83,283			
21	,651	1,277	84,560			
22	,638	1,250	85,810			
23	,560	1,099	86,909			
24	,536	1,050	87,959			
25	,525	1,029	88,989			
26	,482	,946	89,935			
27	,459	,899	90,834			
28	,435	,852	91,686			
29	,417	,818	92,504			
30	,368	,722	93,227			
31	,326	,640	93,866			
32	,323	,634	94,500			
33	,308	,604	95,105			

34	,280	,550	95,654			
35	,264	,518	96,172			
36	,240	,471	96,643			
37	,199	,390	97,033			
38	,190	,373	97,405			
39	,176	,346	97,751			
40	,165	,324	98,075			
41	,147	,288	98,363			
42	,137	,268	98,631			
43	,125	,245	98,875			
44	,114	,223	99,098			
45	,093	,183	99,281			
46	,086	,169	99,450			
47	,081	,159	99,609			
48	,065	,127	99,736			
49	,056	,111	99,846			
50	,044	,087	99,933			
51	,034	,067	100,000			

Extraction Method: Principal Component Analysis.