IJTIHAD Journal On Legal and Economic Studies ISSN: 2335-1039
Volume: 12 / Number: 02 Year 2023 P 286 – 304

Received: 17/11/2021 Accepted: 25/03/2022

An analytical study on individuals' entrepreneurship intention in Tindouf's area among natural entities' records (eviews-9 ARMA model)

Benfareh Aicha [*1], Fardi Hammad[2]

[1] Phd Student, At University Center of Ali Kafi Tindouf ,The laboratry for sustainable local develepment and entrepreneurship (Alegria), benfarehaicha@gmail.com

[2]Prof,At University Center of Ali Kafi Tindouf ,The laboratry for sustainable local develepment and entrepreneurship (Alegria), fardi.molay@yahoo.com

Abstract:

The objective of this study is to find out how the entrepreneurial intention of Tindouf's individuals seemed during the period 2007-2020 in this paper the method adopted is the focus analytical paradigm on based ARMA model, the findings have revealed that Tindouf's entrepreneurs have acted to create their own businesses, and the entrepreneurial mindset has looked up in 2011it's be 18.38%, in 2016 decreased to -3.46%, and in 2020 went it up to 6.25%.

This study also explores the entrepreneurial intention on tindouf's area during the period 2021-2022.

Keywords: entrepreneurial intention - Tindouf's entrepreneurs- entrepreneurial mindset - ARMA model

[*] Corresponding author

JEL Classification Codes,M29 , M20, C22.

INTRODUCTION

The field of entrepreneurship is getting one of top priorities on national policy for most of in developing countries.

According to Peter Druker in his book "innovation and entrepreneurship" the entrepreneurship is neither a science nor as act, it's a practice; he has concluded that innovation is specific tool of entrepreneurship.

This paper examines the entrepreneurial intention among Tindouf's individuals, and tendency to establish their own businesses on Tindouf's area by using ARMA model to forecasted, and compounded annual growth rate (CAGR) to recognize indeed entrepreneurial enhancing during the period 2007-2020.

In order to obtain a solid overview; our data has focused on natural entities 'record on the period we have just mentioned above ,which were taken from the National Commercial Registry Centre (NCRC) of Tindouf's area.

Research Problem: How the entrepreneurial intention of Tindouf's individuals has seemed during the period 2007-2020, and the forecasting of entrepreneurship on 2021-2022?

Research Hypotheses:

H0: there is no statistically significance in the entrepreneurial intention on Tindouf's area.

H1: there is a statistically significance in the entrepreneurial intention on Tindouf's area.

Value of the study:

this study seeks to shine some light on the enhancing the entrepreneurship intention on Tindouf's area during the period 2007-2020 by ARMA model, and attempts to forecasted during the period 2021-2022 .

Research Prospective and Methodology

Procedure of ARIMA modeling the procedure flow chart of ARIMA modeling and forecasting is given in this step (Lihua Ma Chao Hu, 2017).

1/ Time series.
2/ Stationarity test.
3/Calculate correlation coefficient.
4/Patterm recognition.
5/Parameter estimation.
6/Model test.
7/Model optimisation.
8/Forecasting.

Definition of the terms "entrepreneurship" and "entrepreneur":

Entrepreneurship (Prof.P.Natarajan)**:**
-New entry.
– The creation of new enterprise .
– The creation of new organizations.

Low and Macmillan (1988): the creation of new enterprise. (Davidsson, 2016).

Entrepreneurship: a process of action an entrepreneur undertakes to establish an enterprise. (Desai, 2009).

Morris (1988): is a process through which individuals and teams create value by bringing unique packages of resource inputs to expiate opportunities (others, 2000) .

To Schumpeter: competition involves the dynamic innovation of the entrepreneur (Ramadani, 2013)

The entrepreneurship is a powerful from of competition and it based in knowledge, the entrepreneurship education is teaching in mosques and schools. (paul, 2017).

Entrepreneur:

"Entrepreneur is one who innovates, raises money, assembles inputs, chooses managers and sets the organization going with his ability to identify them and opportunities which others are not able to identify and is able to fulfill such economic opportunities. Innovation occurs through i) Introduction of new quality in a product of ii) new product iii) a discovery of fresh demand and fresh sources of supply and iv) by change in the organization and management" (Davisson, 2004).

Table.1. difference between entrepreneurs and entrepreneurship.

Entrepreneur	Entrepreneurship
A person	A process
A visualizer	A vision

A creator	A creation
An organizer	An organization
An innovator	An innovation
A planner	Planning
A risk taker	Risk taking
A communicator	Communication
A leader	Leadership

Source: Alion Fayolle ,2007,p02.

We make modeling and prediction for registration of natural entities (sme) data in the following table2:

Table.2. The Natural Entities 'Record of Tindouf's area data during the period 2007Q1-2020Q4

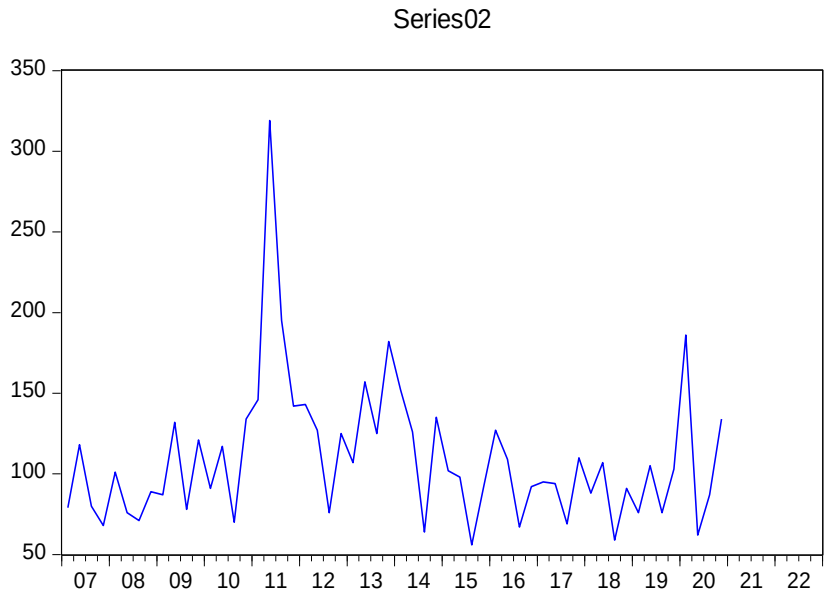
years	1-quartlerly			2-quartlerly			3-quartlerly			4-quartlerly		
	M.REG	S.REG	Total	M.REG	S.REG	Total	M.REG	S.REG	Total	M.REG	S.REG	Total
2007	70	9	79	99	19	118	67	13	80	58	10	68
2008	88	13	101	61	15	76	52	19	71	75	14	89
2009	71	16	87	118	14	132	69	9	78	106	15	121
2010	76	15	91	101	16	117	57	13	70	119	15	134
2011	122	24	146	302	17	319	183	12	195	118	24	142
2012	119	24	143	96	31	127	65	11	76	106	19	125
2013	82	25	107	141	16	157	108	17	125	161	21	182
2014	120	32	152	95	31	126	48	16	64	103	32	135
2015	75	27	102	61	37	98	48	8	56	57	35	92
2016	86	41	127	71	38	109	40	27	67	59	33	92
2017	56	39	95	67	27	94	49	20	69	69	41	110
2018	56	32	88	70	37	107	42	17	59	61	30	91
2019	61	15	76	69	36	105	59	17	76	86	17	103
2020	153	33	186	45	17	62	73	14	87	80	54	134

Source: National Center of the Trade Register of Tindouf's area

M.REG: main registrations.

S.REG: secondary registrations.

Fig.1.the graph of The Natural Entities 'Record of Tindouf's area data from 2007q1 to 2020q4



Source :output of eviews-9.

CAGR: compounded annual growth rate for registration of natural entities

CAGR = {(CF/CI) ^ (1 / (n-1)} – 1

Where:

CF = consumption of final year

CI=consumption of base year

n = current year – base year

Table .3. The CAGR of registration of natural entities (SME'S Tindouf).

years	q1	q2	q3	q4	PERIOD	CAGR	%/YEAR

						%	
2007	79	118	80	68	1	/	/
2008	101	76	71	89	2	/	/
2009	87	132	78	121	3	/	/
2010	91	117	70	134	4	/	/
2011	146	319	195	142	5YEARS	18,38%	/
2012	143	127	76	125	1	/	/
2013	107	157	125	182	2	/	/
2014	152	126	64	135	3	/	/
2015	102	98	56	92	4	/	/
2016	127	109	67	92	5YEARS	-3,46%	/
2017	95	94	69	110	1	/	/
2018	88	107	59	91	2	/	/
2019	76	105	76	103	3	/	/
2020	186	62	87	134	4YEARS	6,25%	30,28%

source output of eviews-9.

Stationarity test:

The Natural Entities 'Record of Tindouf's area data series during 2007Q1-2020Q4 is plotted on Figure. 2. The result of the stationarity test (ADF test) on the data is given in Table 4.

Table.4. Augmented Dickey-Fuller unit root test on The Natural Entities 'Record of Tindouf's area.

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.927026	0.3105

Test critical values:	1% level	-2.608490
	5% level	-1.946996
	10% level	-1.612934

Source: output of eviews-9.

It can be seen that ADF= -0.927026 is greater than the critical value of the significance level of 0.01, 0.05 and 0.1 in the level, that is to say, the original Natural Entities 'Record of Tindouf's area (sme) sequence is non-stationary.

we make test ADF in the first-order difference a Natural Entities 'Record (DSME) it shows that ADF=-11.28719 is less than the three critical values of the test level. That is to say, the DSME sequence after the first-order difference is a stationary series.

Table.5. The results of the ADF test for the Natural Entities 'Record (DSME) sequence is given in Table :

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.28719	0.0000
Test critical values:	1% level	-4.137279	
	5% level	-3.495295	
	10% level	-3.176618	

source output of eviews-9.

Table.6. The results of the ADF test for the Natural Entities 'Record (DSME) sequence is given in Table :

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.28719	0.0000
Test critical values:	1% level	-4.137279	
	5% level	-3.495295	
	10% level	-3.176618	

source output of eviews-9.

Fig.2. Autocorrelation and partial autocorrelation function graphs of the Natural Entities 'Record (DSME) series.

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
***| . |	***| . |	1	-0.424	-0.424	10.448	0.001
. | . |	.*| . |	2	0.058	-0.149	10.647	0.005
.*| . |	**| . |	3	-0.203	-0.296	13.121	0.004
. |** |	. | . |	4	0.248	0.044	16.915	0.002
**| . |	**| . |	5	-0.263	-0.214	21.238	0.001
. |*. |	.*| . |	6	0.110	-0.135	22.007	0.001
**| . |	**| . |	7	-0.218	-0.321	25.101	0.001
. |** |	. | . |	8	0.348	0.033	33.162	0.000
.*| . |	. | . |	9	-0.173	-0.027	35.205	0.000
. |*. |	. | . |	10	0.123	0.018	36.262	0.000
.*| . |	. | . |	11	-0.106	0.051	37.064	0.000
. |*. |	. |*. |	12	0.179	0.098	39.402	0.000

**| . |	. | . |	13	-0.245	-0.046	43.896	0.000
. |*. |	. | . |	14	0.123	0.001	45.050	0.000
.*| . |	.*| . |	15	-0.195	-0.119	48.035	0.000
. |*** |	. |** |	16	0.376	0.244	59.377	0.000
**| . |	. | . |	17	-0.305	-0.021	67.056	0.000
. | . |	.*| . |	18	0.052	-0.162	67.282	0.000
. | . |	. | . |	19	0.007	0.015	67.286	0.000
. |*. |	. | . |	20	0.162	-0.032	69.634	0.000
.*| . |	. | . |	21	-0.168	0.064	72.238	0.000
. | . |	.*| . |	22	-0.014	-0.159	72.256	0.000
. | . |	. | . |	23	-0.041	-0.060	72.419	0.000
. |*. |	.*| . |	24	0.155	-0.086	74.844	0.000

Source ;output of eviews-9.

Table 5: lists the test results of ARMA (p, q) for different parameters. Adjusted R-squared, AIC value, SC value and S.E. of regression are all important criteria.

For selecting models. The lowest AIC criterion and the lowest volatility ($SIGMA^2$), the highest Adjusted R-squared, and the more significant. And we select the optimal model in this study the best ARIMA model is ARIMA (1.1.1).

Table 7. Test results of ARMA (p,q).

ARIMA MODEL	SIG COEFF	SIGMA	ADJS-R SQUAR	AIC
ARIMA (1.1.1)	3	1710.848	.0251	10.443
MA(1)	2	1754.336	0.247	10.429

Source; output of eviews-9.

Model establishment and inspection

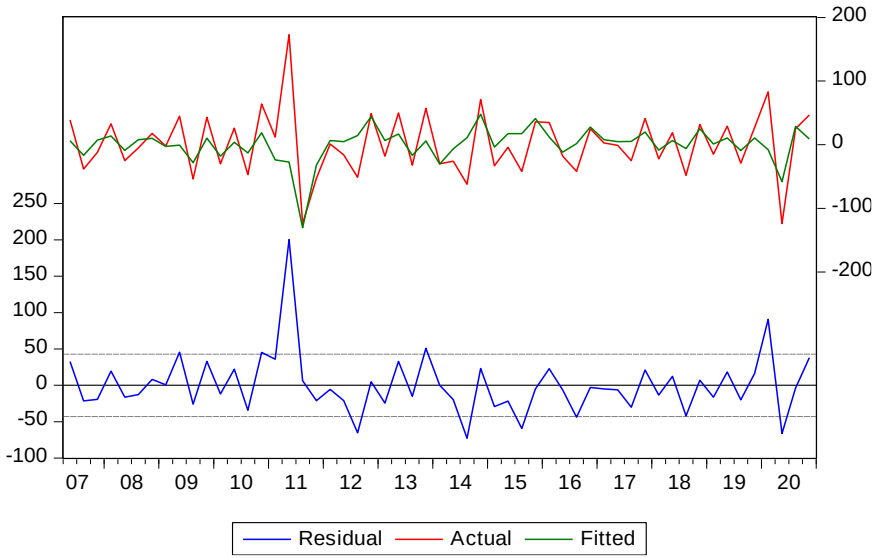
the estimated results with the ARIMA model are as follows:

Table.8.. Estimation results of the ARIMA model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.251104	1.589915	0.157935	0.8751
AR(1)	0.215700	0.243651	0.885280	0.3802
MA(1)	-0.838545	0.147563	-5.682632	0.0000
SIGMASQ	1710.848	237.2558	7.210985	0.0000
R-squared	0.293537	Mean dependent var		1.000000
Adjusted R-squared	0.251980	S.D. dependent var		49.66443
S.E. of regression	42.95384	Akaike info criterion		10.44377
Sum squared resid	94096.65	Schwarz criterion		10.58976
Log likelihood	-283.2037	Hannan-Quinn criter.		10.50022
F-statistic	7.063534	Durbin-Watson stat		2.027053
Prob(F-statistic)	0.000464			
Inverted AR Roots	.22			
Inverted MA Roots	.84			

Source; output of eviews-9.

Fig. 4. Actual series, fitted series and residual series of the Natural Entities ‘Record (DSME) sequence.



Source :output of eviews-9.

Fig.3. the autocorrelation and partial correlation.

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. | . |	. | . |	1	-0.027	-0.027	0.0414	
. |*. |	. |*. |	2	0.090	0.089	0.5208	
.*| . |	.*| . |	3	-0.106	-0.103	1.2013	0.273
. |*. |	. |*. |	4	0.126	0.116	2.1706	0.338
**| . |	**| . |	5	-0.228	-0.215	5.4401	0.142
. | . |	. | . |	6	0.014	-0.014	5.4530	0.244
.*| . |	.*| . |	7	-0.121	-0.072	6.4103	0.268
. |** |	. |** |	8	0.303	0.272	12.521	0.051
. | . |	. | . |	9	-0.026	0.026	12.567	0.083
. |*. |	. | . |	10	0.131	0.048	13.759	0.088
. | . |	. | . |	11	-0.040	0.007	13.874	0.127
. |*. |	. | . |	12	0.090	-0.017	14.466	0.153
**| . |	.*| . |	13	-0.230	-0.130	18.412	0.073
. | . |	. | . |	14	-0.003	-0.022	18.413	0.104
.*| . |	.*| . |	15	-0.161	-0.066	20.446	0.085

. |*. |	. |*. |	16	0.213	0.150	24.085	0.045
**| . |	**| .	17	-0.243	-0.230	28.949	0.016
. | . |	.*| . |	18	-0.015	-0.148	28.968	0.024
. | . |	. | . |	19	0.001	0.055	28.968	0.035
. |*. |	. | . |	20	0.077	-0.057	29.506	0.043
.*| . |	. | . |	21	-0.186	-0.024	32.684	0.026
.*| . |	.*| . |	22	-0.093	-0.189	33.505	0.030
. | . |	. | . |	23	-0.063	0.027	33.900	0.037
. |*. |	. | . |	24	0.089	-0.013	34.699	0.042

Source: output of eviews-9.

Data forecasting

Projected from within the sample (2007q1-2020q4) :

Fig.5. the graph of actual, fitted, residual

obs	Actual	Fitted	Residual	Residual Plot
2007Q2	39.0000	6.33122	32.6688	| . | * |
2007Q3	-38.0000	-16.5652	-21.4348	| .*| . |
2007Q4	-12.0000	7.27255	-19.2726	| .*| . |
2008Q1	33.0000	13.5986	19.4014	| . |*. |
2008Q2	-25.0000	-8.77028	-16.2297	| .*| . |
2008Q3	-5.00000	7.88370	-12.8837	| .*| . |
2008Q4	18.0000	9.83978	8.16022	| . * . |
2009Q1	-2.00000	-2.68290	0.68290	| . * . |
2009Q2	45.0000	-0.56139	45.5614	| . | .* |
2009Q3	-54.0000	-28.1957	-25.8043	| .*| . |
2009Q4	43.0000	10.1922	32.8078	| . | * |
2010Q1	-30.0000	-17.9897	-12.0103	| .*| . |
2010Q2	26.0000	3.80702	22.1930	| . |*. |
2010Q3	-47.0000	-12.8115	-34.1885	| * | . |
2010Q4	64.0000	18.7304	45.2696	| . | * |
2011Q1	12.0000	-23.9195	35.9195	| . | * |

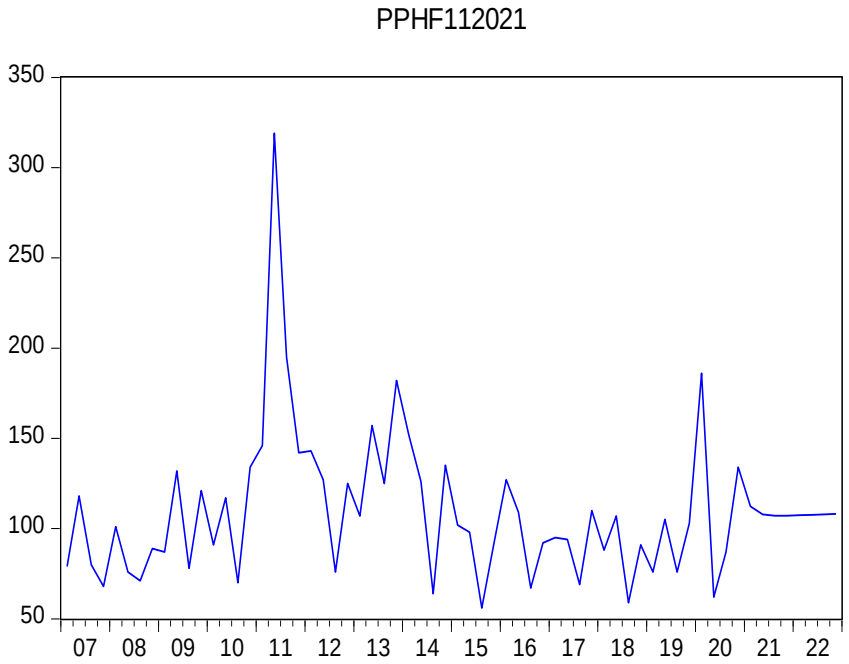
2011Q2	173.000	-27.2602	200.260	. | .	*|
2011Q3	-124.000	-130.361	6.36123	. * .	
2011Q4	-53.0000	-31.8860	-21.1140	.*| .	
2012Q1	1.00000	6.46659	-5.46659	. * .	
2012Q2	-16.0000	4.99456	-20.9946	.*| .	
2012Q3	-51.0000	14.3459	-65.3459	* . | .	
2012Q4	49.0000	43.9890	5.01100	. * .	
2013Q1	-18.0000	6.56379	-24.5638	.*| .	
2013Q2	50.0000	16.9123	33.0877	. | *	
2013Q3	-32.0000	-16.7633	-15.2367	.*| .	
2013Q4	57.0000	6.07149	50.9285	. | .*	
2014Q1	-30.0000	-30.2136	0.21364	. * .	
2014Q2	-26.0000	-6.45328	-19.5467	.*| .	
2014Q3	-62.0000	10.9792	-72.9792	* . | .	
2014Q4	71.0000	48.0198	22.9802	. |*.	
2015Q1	-33.0000	-3.75832	-29.2417	* | .	
2015Q2	-4.00000	17.5993	-21.5993	.*| .	
2015Q3	-42.0000	17.4460	-59.4460	*. | .	
2015Q4	36.0000	40.9857	-4.98567	. * .	
2016Q1	35.0000	12.1428	22.8572	. |*.	
2016Q2	-18.0000	-11.4203	-6.57968	. * .	
2016Q3	-42.0000	1.83169	-43.8317	* | .	
2016Q4	25.0000	27.8924	-2.89239	. * .	
2017Q1	3.00000	8.01483	-5.01483	. * .	
2017Q2	-1.00000	5.04920	-6.04920	. * .	
2017Q3	-25.0000	5.05376	-30.0538	* | .	
2017Q4	41.0000	20.0059	20.9941	. |*.	
2018Q1	-22.0000	-8.56389	-13.4361	.*| .	
2018Q2	19.0000	6.71833	12.2817	. |*.	
2018Q3	-48.0000	-6.00350	-41.9965	* | .	
2018Q4	32.0000	25.0593	6.94069	. * .	
2019Q1	-15.0000	1.27925	-16.2793	.*| .	

2019Q2	29.0000	10.6123	18.3877	. |*.
2019Q3	-29.0000	-8.96666	-20.0333	.*| .
2019Q4	27.0000	10.7405	16.2595	. |*.
2020Q1	83.0000	-7.61348	90.6135	. | . *
2020Q2	-124.000	-57.8835	-66.1165	* . | .
2020Q3	25.0000	28.8919	-3.89187	. * .
				. | *
2020Q4	47.0000	8.85294	38.1471	

Source: output of eviews-9.

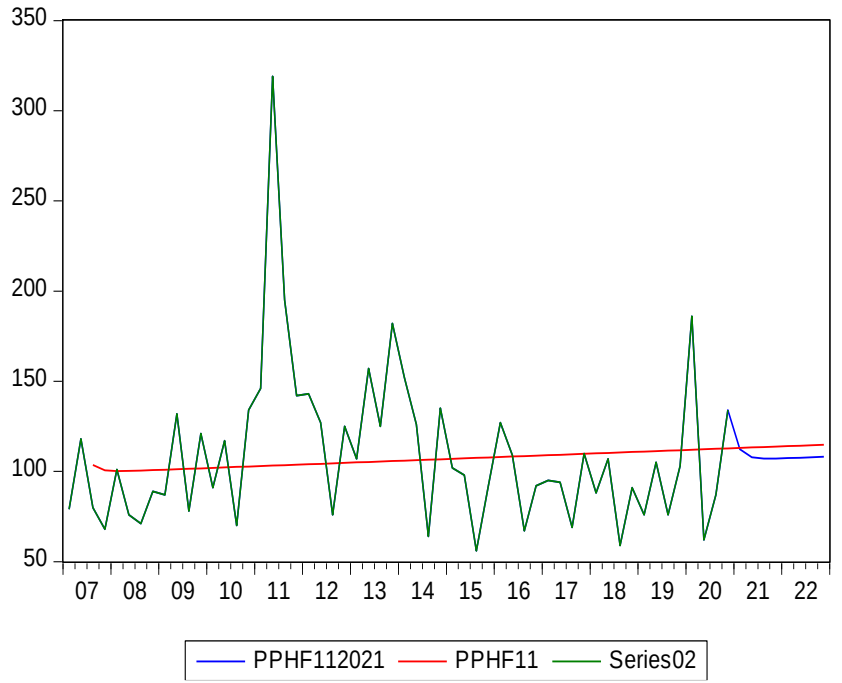
Projected from outside the sample (2021q1-2022q4):

Fig.6. the Natural Entities 'Record forecast from 2021Q1 to 2022Q4.



Source: output of eviews-9.

Fig.7.graph the Natural Entities 'Record forecast from 2021Q1 to 2022Q4



Source :output of eviews-9.

Therefore, we have excepted H1 which means there is a statistically significance in the entrepreneurial intention to establish firms on Tindouf's area while H0 there is no statistically significance in the entrepreneurial intention to establish firms on Tindouf's area has rejected.

CONCLUSION

The enhancing of natural entities registration:

1/from 2007 to 2011 picked it up in the overall compounded annual growth rate (CAGR) for natural entities' record in Tindouf's area 18.38% in five years and this is due to economic factors.

2/from 2012 to 2016 there was a decline in the overall compounded annual growth rate (CAGR) 3.46% for natural entities' record because in this period our country had economic crisis (low oil prices)

3/from 2017 to 2020, there was a slight improvement in the compounded annual growth rate (CAGR) during this four-year period, the Algerian-Mauritanian's area border was launched on 2018 which called the martyr Mustafa Ben Boulaide.

4/during 2020, the annual growth rate was increased to30.28% for natural entities.

Acknowledgements

We would like to extend our thanks to the National Commercial Registry Centre (NCRC) of Tindouf's area for helping us.

Bibliography List :

(1) Davisson, P. "*researching entrepreneurship and design* ",springer international publishing, p23.

(2) Desai, V. "*Entrepreneurship Development* ",Himalaya publishing House , p60.

(3) Lihua Ma Chao Hu, R. L." ARIMA model forecast based on EViews software". *Earth and Environmental Science*,2017.

(4) others, M. H. ,"*Entrepreneurship :craeting a new Mindset"* MacMillan publishing, p89.

(5) paul, V. R. ,"*Entrepreneurship and Management in an Islamic context".* springer publishing. p75.

(6) Prof.P.Natarajan. (s.d.). "*Entrepreneurship Management".* Pondichery university directorate of distance educaion.

(7) Ramadani, R. H. (2013). *Effictive Entrepreneurial Mnagement : strategy ,planning ,Risk management and organization.* springer publishing .

(8) Alion Fayolle,"Entrepreneurship and new value creation" ,Cambridge university press , p02.

(9) The National Commercial Registry Centre (NCRC) of Tindouf's area.