Annals of "Dunarea de Jos" University of Galati
Fascicle I. Economics and Applied Informatics
Years XXVI – nº1/2021
ISSN-L 1584-0409 ISSN-Online 2344-441X
www.eia.feaa.ugal.ro

DOI https://doi.org/10.35219/eai15840409181

The „Fingerprint" of the American Management in the Powerful Dynamics Concerning the Real G.D.P. from the United States of America

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A R T I C L E I N F O

Article history:
Accepted April 2021
Available online May 2021
JEL Classification
C1, C12, C2

Keywords:
American management, American smart style, Real G.D.P., Annual growth

A B S T R A C T

The victorious spirit, which predominates in all the provinces of the United States of America, penetrates the scale of values in rise concerning the real G.D.P. The symbiosis of the progresses witnessed by the American nation along of the time, as a result of the management organized in "American smart style", have reflection in the values regarding the real G.D.P. of the United States of America. The aim of this original research pursues to display the permanent increase regarding the real G.D.P. of the United States of America, between 2021-2030.

1. Introduction

The American management represents a real brand, a true star in the relatively speaking worldwide management and this phenomenon is a positive vector for the towering standard of the life in the United states of America. The pulsations concerning the powerful vibrations of the American management in all the economic and social spheres have as effects augmentations of the real G.D.P. in the United States of America. The objective of this original research is indicated by the representation of the real G.D.P.'s rises which will be in the United States of America, between 2021-2030, as effects of the american management's performances. In the first episode of this research, we can see the proceeding' s steps which have as purpose the display of the „radiography" for the statistical data which show us the „wellness" regarding the real G.D.P. in the United States of America, between 2010-2020, „wellness in mirroring" with the period 2021-2030. In the second episode of this article, we can observe the proceeding' s steps which follow the diagnostic regarding the „wellness" concerning the annual growth of the real G.D.P. in the United States of America, between 2010-2019, in corelation with the same „wellness" projected between 2021-2030. The both episodes, the third and the fourth of this paper, achieve the „polarization" concerning the steps which have within sight the statistical values between 2010-2018, concerning the G.D.P. per capita in PPP, respectively the G.D.P. per capita in PPS for the United States of America, for „to mirror" them wellness' diagnostics in the period 2021-2030, respectively in 2021. In top management of the methods applied for these projections, which have in background actions for to „X-ray" the G,D.P.'s „wellness" in the United States, lead the „Least Squares Method" and the forecast's method. The past master who shaped the structure of the „Least Squares Method" which is the „best ingredient" for to mould forecasts, was Johann Carl Friedrich Gauss.

2. The proceeding' s steps which have as aim the representation for the trend model concerning the statistical data of the real G.D.P. in United States of America, in the period 2010-2020

Table 1. The real G.D.P. in the United States of America, between 2010-2020

YEARS	THE REAL G.D.P. IN THE UNITED STATES OF AMERICA ($ billions chained 2012) (ξ_i)
2010	15598,8
2011	15840,7
2012	16197,0
2013	16495,4
2014	16912,0
2015	17432,2
2016	17730,5

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YEARS	THE REAL G.D.P. IN THE UNITED STATES OF AMERICA ($ billions chained 2012) (ξ_i)
2017	**18144,1**
2018	**18687,8**
2019	**19091,7**
2020	**18422,6**

Source: „Statista Portal United States of America"

- if the proceeding's structure, which draws up the trend for the ξ variable, where ξ = **the real G.D.P. in United States,** selects a linear exposure $\xi_{t_i} = a + b \cdot t_i$, *a* and *b* will be [4]:

$$a = \frac{\begin{vmatrix} \sum_{i=1}^{n} \xi_i & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} \xi_i t_i & \sum_{i=1}^{n} t_i^2 \end{vmatrix}}{\begin{vmatrix} n & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} t_i^2 \end{vmatrix}} = \frac{\sum_{i=1}^{n} \xi_i \sum_{i=1}^{n} t_i^2 - \sum_{i=1}^{n} \xi_i t_i \sum_{i=1}^{n} t_i}{n \sum_{i=1}^{n} t_i^2 - \left(\sum_{i=1}^{n} t_i \right)^2} \qquad b = \frac{\begin{vmatrix} n & \sum_{i=1}^{n} x_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} \xi_i t_i \end{vmatrix}}{\begin{vmatrix} n & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} t_i^2 \end{vmatrix}} = \frac{n \sum_{i=1}^{n} \xi_i t_i - \sum_{i=1}^{n} t_i \sum_{i=1}^{n} \xi_i}{n \sum_{i=1}^{n} t_i^2 - \left(\sum_{i=1}^{n} t_i \right)^2}$$

Table 2. The „radiography" for the values of the real G.D.P. in the United States, if this indicates a linear exposure

YEARS	THE REAL G.D.P. IN THE UNITED STATES OF AMERICA ($ billions chained 2012) (ξ_i)	LINEAR TENDENCY				
		t_i	t_i^2	$t_i \xi_i$	$\xi_{t_i} = a + bt_i$	$\lvert \xi_i - \xi_{t_i} \rvert$
2010	**15598,8**	-5	25	-77994,0	15563,37727	35,4
2011	**15840,7**	-4	16	-63362,8	15915,29818	74,6
2012	**16197,0**	-3	9	-48591,0	16267,21909	70,2
2013	**16495,4**	-2	4	-32990,8	16619,14000	123,7
2014	**16912,0**	-1	1	-16912,0	16971,06091	59,1
2015	**17432,2**	0	0	0	17322,98182	109,2
2016	**17730,5**	+1	1	+17730,5	17674,90273	55,6
2017	**18144,1**	+2	4	+36288,2	18026,82364	117,3
2018	**18687,8**	+3	9	+56063,4	18378,74455	309,1
2019	**19091,7**	+4	16	+76366,8	18730,66546	361,0
2020	**18422,6**	+5	25	+92113,0	19082,58637	660,0
TOTAL	**190552,8**	0	110	38711,3		1975,2

$$a = \frac{190552{,}8 \cdot 110}{11 \cdot 110} = 17322{,}98182 \qquad b = \frac{11 \cdot 38711{,}3}{11 \cdot 110} = 351{,}9209091$$

$$v_I = \left[\frac{\sum_{i=1}^{m} \lvert \xi_i - \xi_{t_i}^{I} \rvert}{n} : \frac{\sum_{i=1}^{m} \xi_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{m} \lvert \xi_i - \xi_{t_i}^{I} \rvert}{\sum_{i=1}^{m} \xi_i} \cdot 100 = \frac{1975{,}2}{190552{,}8} \cdot 100 = 1{,}04\%$$

- if the proceeding's structure which draws up the trend of the modeling for ξ variable, where ξ = **the real G.D.P. in United States,** selects a parabolic exposure $\xi_{t_i} = a + b \cdot t_i + ct_i^2$, *a* and *b* will be [4]:

Table 3. The „radiography" for the values of the real G.D.P. in the United States, if this indicates a quadratic exposure

YEARS	THE REAL G.D.P. IN THE UNITED STATES OF AMERICA ($ billions chained 2012) (ξ_i)	PARABOLIC TENDENCY						
		t_i	t_i^2	t_i^3	t_i^4	$t_i^2 \xi_i$	$\xi_{t_i} = a + b\xi_i + c\xi_i^2$	$\lvert \xi_i - \xi_{t_i} \rvert$
2010	**15598,8**	-5	25	-125	625	389970,0	15407,59231	191,2
2011	**15840,7**	-4	16	-64	256	253451,2	15852,98419	12,3
2012	**16197,0**	-3	9	-27	81	145773,0	16277,60475	80,6

YEARS	THE REAL G.D.P. IN THE UNITED STATES OF AMERICA ($ billions chained 2012) (ξ_i)	PARABOLIC TENDENCY						
		t_i	t_i^2	t_i^3	t_i^4	$t_i^2\xi_i$	$\xi_{t_i} = a + b\xi_i + c\xi_i^2$	$\lvert\xi_i - \xi_{t_i}\rvert$
2013	**16495,4**	-2	4	-8	16	65981,6	16681,45398	186,1
2014	**16912,0**	-1	1	-1	1	16912,0	17064,53189	152,5
2015	**17432,2**	0	0	0	0	0	17426,83846	5,4
2016	**17730,5**	+1	1	1	1	17730,5	17768,37370	37,9
2017	**18144,1**	+2	4	8	16	72576,4	18089,13762	55,0
2018	**18687,8**	+3	9	27	81	168190,2	18389,13021	298,7
2019	**19091,7**	+4	16	64	256	305467,2	18668,35147	423,3
2020	**18422,6**	+5	25	125	625	460565,0	18926,80140	504,1
TOTAL	**190552,8**	0	110	0	1958	1896617,1		1947,1

$$a = \frac{\sum_{i=1}^{n} t_i^4 \sum_{i=1}^{n} \xi_i - \sum_{i=1}^{n} t_i^2 \sum_{i=1}^{n} t_i^2 \cdot \xi_i}{n\sum_{i=1}^{n} t_i^{\,4} - \left(\sum_{i=1}^{n} t_i^2\right)^2} \; ; \quad b = \frac{\sum_{i=1}^{n} \xi_i t_i}{\sum_{i=1}^{n} t_i^{\,2}} \; ; \quad c = \frac{n \cdot \sum_{i=1}^{n} t_i^2 \cdot \xi_i - \sum_{i=1}^{n} t_i^2 \cdot \sum_{i=1}^{n} \xi_i}{n\sum_{i=1}^{n} t_i^{\,4} - \left(\sum_{i=1}^{n} t_i^2\right)^2}$$

$$a = \frac{1958 \cdot 190552{,}8 - 110 \cdot 1896617{,}1}{11 \cdot 1958 - 110^2} = 17426{,}83846 \qquad b = \frac{38711{,}3}{110} = 351{,}9209091$$

$$c = \frac{11 \cdot 1896617{,}1 - 110 \cdot 190552{,}8}{11 \cdot 1958 - 110^2} = -10{,}38566434$$

$$v_{II} = \left[\frac{\sum_{i=1}^{m} \left|\xi_i - \xi_{t_i}^{II}\right|}{n} : \frac{\sum_{i=1}^{m} \xi_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{m} \left|\xi_i - \xi_{t_i}^{II}\right|}{\sum_{i=1}^{m} \xi_i} \cdot 100 = \frac{1947{,}1}{190552{,}8} \cdot 100 = 1{,}02\%$$

- if the proceeding's structure which draws up the trend for ξ variable, where ξ **= the real G.D.P. in United States,** selects an exponential exposure $\xi_{t_i} = ab^{t_i}$, *a* and *b* will be [4]:

$$\lg a = \frac{\begin{vmatrix} \sum_{i=1}^{n} \lg \xi_i & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} t_i \lg \xi_i & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}}{\begin{vmatrix} n & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}} = \frac{\sum_{i=1}^{n} \lg \xi_i \sum_{i=1}^{n} t_i^{\,2} - \sum_{i=1}^{n} t_i \lg \xi_i \sum_{i=1}^{n} t_i}{n\sum_{i=1}^{n} t_i^{\,2} - \left(\sum_{i=1}^{n} t_i\right)^2} \qquad \lg b = \frac{\begin{vmatrix} n & \sum_{i=1}^{n} \lg \xi_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} t_i \lg \xi_i \end{vmatrix}}{\begin{vmatrix} n & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}} = \frac{n \cdot \sum_{i=1}^{n} t_i \lg \xi_i - \sum_{i=1}^{n} \lg \xi_i \sum_{i=1}^{n} t_i}{n\sum_{i=1}^{n} t_i^{\,2} - \left(\sum_{i=1}^{n} t_i\right)^2}$$

Table 4. The „radiography" for the values of the real G.D.P. in the United States, if this indicates an exponential exposure

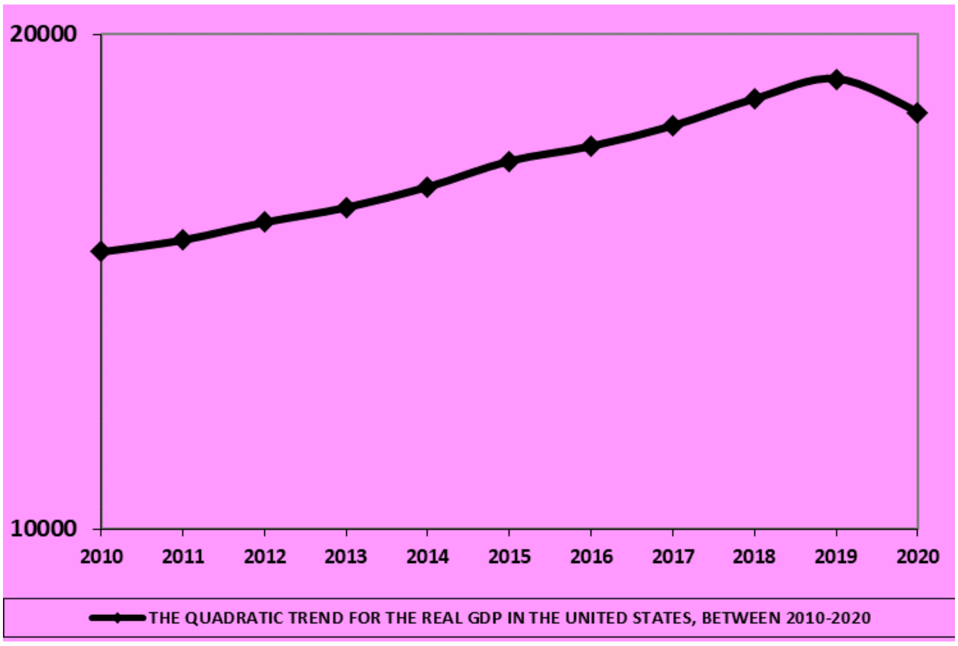
YEARS	THE REAL G.D.P. IN THE UNITED STATES OF AMERICA ($ billions chained 2012) (ξ_i)	EXPONENTIAL TENDENCY					
		t_i	$\lg \xi_i$	$t_i \lg \xi_i$	$\lg \xi_{t_i} = \lg a + t_i \lg b$	$\xi_{t_i} = ab^{t_i}$	$\lvert\xi_i - \xi_{t_i}\rvert$
2010	**15598,8**	-5	4,193091190	-20,96545595	4,193346321	15607,96638	9,2
2011	**15840,7**	-4	4,199774369	-16,79909748	4,202211971	15929,86044	89,2
2012	**16197,0**	-3	4,209434582	-12,62830375	4,211077621	16258,39314	61,4
2013	**16495,4**	-2	4,217362851	-8,434725703	4,219943271	16593,70141	98,3
2014	**16912,0**	-1	4,228194970	-4,228194970	4,228808921	16935,92497	23,9
2015	**17432,2**	0	4,241352200	0	4,237674571	17285,20645	147,0
2016	**17730,5**	+1	4,248720983	4,248720983	4,246540221	17641,69141	88,8
2017	**18144,1**	+2	4,258735431	8,517470862	4,255405871	18005,52840	138,6
2018	**18687,8**	+3	4,271558178	12,81467453	4,264271521	18376,86907	310,9
2019	**19091,7**	+4	4,280844601	17,12337841	4,273137171	18755,86815	335,8
2020	**18422,6**	+5	4,265350923	21,32675461	4,282002821	19142,68359	720,1
TOTAL	**190552,8**	0	46,61442028	0,975221545			2023,2

$$\lg a = \frac{46{,}61442028 \cdot 110}{11 \cdot 110} = 4{,}237674571 \qquad \lg b = \frac{11 \cdot 0{,}975221545}{11 \cdot 110} = 0{,}00886565$$

$$v_{\exp} = \left[\frac{\sum_{i=1}^{n} \left| \xi_i - \xi_{t_i}^{\exp} \right|}{n} : \frac{\sum_{i=1}^{n} \xi_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \xi_i - \xi_{t_i}^{\exp} \right|}{\sum_{i=1}^{n} \xi_i} \cdot 100 = \frac{2023{,}2}{190552{,}8} \cdot 100 = 1{,}06\%$$

$$v_{II} = 1{,}02\% < v_I = 1{,}04\% < v_{\exp} = 1{,}06\%$$

The values concerning the **real G.D.P. in the United States of America, between 2010-2020,** touch a quadratic „target" $\xi_{t_i} = a + b \cdot t_i + ct_i^2$.



Graph 1. The quadratic „radiography" of the statistical data which show us the „wellness" regarding the real G.D.P. in the United States of America, between 2010-2020

$$\xi_{2021}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 6 + (-10{,}38566434) \cdot 6^2 = \$19164{,}5\_billions$$
$$\xi_{2022}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 7 + (-10{,}38566434) \cdot 7^2 = \$19381{,}4\_billions$$
$$\xi_{2023}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 8 + (-10{,}38566434) \cdot 8^2 = \$19577{,}5\_billions$$
$$\xi_{2024}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 9 + (-10{,}38566434) \cdot 9^2 = \$19752{,}9\_billions$$
$$\xi_{2025}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 10 + (-10{,}38566434) \cdot 10^2 = \$19907{,}5\_billions$$
$$\xi_{2026}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 11 + (-10{,}38566434) \cdot 11^2 = \$20041{,}3\_billions$$
$$\xi_{2027}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 12 + (-10{,}38566434) \cdot 12^2 = \$20154{,}4\_billions$$
$$\xi_{2028}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 13 + (-10{,}38566434) \cdot 13^2 = \$20246{,}6\_billions$$
$$\xi_{2029}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 14 + (-10{,}38566434) \cdot 14^2 = \$20318{,}1\_billions$$
$$\xi_{2030}^{REAL\_GDP} = 17426{,}83846 + 351{,}9209091 \cdot 15 + (-10{,}38566434) \cdot 15^2 = \$20368{,}9\_billions$$

3. The proceeding' s steps, which pursue the statistical data regarding the annual growth of the Real G.D.P. in United States of America, for to achieve them wellness' diagnostic

Table 5. The annual growth of the real G.D.P. in the United States, between 2010-2019

YEARS	THE ANNUAL GROWTH OF THE REAL G.D.P. IN THE UNITED STATES OF AMERICA (%) (λ_i)
2010	2,6
2011	1,6
2012	2,2
2013	1,8
2014	2,5
2015	2,9
2016	1,6
2017	2,4
2018	2,9
2019	2,3

Source: „Statista Portal United States of America"

- if the proceeding's structure which draws up the trend for the λ variable, where λ = **the annual growth of the Real G.D.P. in United States,** selects a linear exposure $\lambda_{t_i} = a + b \cdot t_i$, *a* and *b* will be [4]:

Table 6. The „radiography" for the annual growth's values concerning the real G.D.P. in the United States, if this indicates a linear exposure

YEARS	THE ANNUAL GROWTH OF THE REAL G.D.P. IN THE UNITED STATES OF AMERICA (%) (λ_i)	LINEAR TENDENCY				
		t_i	t_i^2	$t\lambda_i$	$\lambda_{t_i} = a + bt_i$	$\lvert\lambda_i - \lambda_{t_i}\rvert$
2010	2,6	-5	25	-13,0	2,084545455	0,5
2011	1,6	-4	16	-6,4	2,123636364	0,5
2012	2,2	-3	9	-6,6	2,162727273	0
2013	1,8	-2	4	-3,6	2,201818182	0,4
2014	2,5	-1	1	-2,5	2,240909091	0,3
2015	2,9	+1	1	+2,9	2,319090909	0,6
2016	1,6	+2	4	+3,2	2,358181818	0,8
2017	2,4	+3	9	+7,2	2,397272727	0
2018	2,9	+4	16	+11,6	2,436363636	0,5
2019	2,3	+5	25	+11,5	2,475454545	0,2
TOTAL	22,8	0	110	4,3		3,8

$$a = \frac{22{,}8 \cdot 110}{10 \cdot 110} = 2{,}28 \qquad b = \frac{10 \cdot 4{,}3}{10 \cdot 110} = 0{,}039090909$$

$$v_I = \left[\frac{\sum_{i=1}^{m} \left|\lambda_i - \lambda_{t_i}^I\right|}{n} : \frac{\sum_{i=1}^{m} \lambda_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{m} \left|\lambda_i - \lambda_{t_i}^I\right|}{\sum_{i=1}^{m} \lambda_i} \cdot 100 = \frac{3{,}8}{22{,}8} \cdot 100 = 16{,}67\%$$

- if the proceeding's structure which draws up the trend for λ variable, where λ = **the annual growth of the Real G.D.P. in United States,** selects a parabolic exposure $\lambda_{t_i} = a + b \cdot t_i + ct_i^2$, *a* and *b* will be [4]:

Table 7. The „radiography" for the annual growth's values regarding the real G.D.P. in the United States, if this indicates a quadratic exposure

YEARS	THE ANNUAL GROWTH OF THE REAL G.D.P. IN THE UNITED STATES OF AMERICA (%) (λ_i)	PARABOLIC TENDENCY						
		t_i	t_i^2	t_i^3	t_i^4	$t_i^2\lambda_i$	$\lambda_{t_i} = a + b\lambda_i + c\lambda_i^2$	$\lvert\lambda_i - \lambda_{t_i}\rvert$
2010	2,6	-5	25	-125	625	65,0	2,161283423	0,4
2011	1,6	-4	16	-64	256	25,6	2,151042774	0,5
2012	2,2	-3	9	-27	81	19,8	2,151764702	0,1
2013	1,8	-2	4	-8	16	7,2	2,163449196	0,4
2014	2,5	-1	1	-1	1	2,5	2,186096256	0,3
2015	2,9	+1	1	+1	1	2,9	2,264278074	0,6
2016	1,6	+2	4	+8	16	6,4	2,319812832	0,7
2017	2,4	+3	9	+27	81	21,6	2,386310156	0

YEARS	THE ANNUAL GROWTH OF THE REAL G.D.P. IN THE UNITED STATES OF AMERICA (%) (λ_i)	PARABOLIC TENDENCY						
		t_i	t_i^2	t_i^3	t_i^4	$t_i^2\lambda_i$	$\lambda_{t_i} = a + b\lambda_i + c\lambda_i^2$	$\lvert\lambda_i - \lambda_{t_i}\rvert$
2018	**2,9**	+4	16	+64	256	46,4	2,463784446	0,4
2019	**2,3**	+5	25	+125	625	57,5	2,552192502	0,3
TOTAL	**22,8**	0	110	0	1958	254,9		3,7

$$a = \frac{1958 \cdot 22{,}8 - 110 \cdot 254{,}9}{10 \cdot 1958 - 110^2} = 2{,}219705882 \qquad b = \frac{4{,}3}{110} = 0{,}039090909$$

$$c = \frac{10 \cdot 254{,}9 - 110 \cdot 22{,}8}{10 \cdot 1958 - 110^2} = 0{,}005481283$$

$$v_{II} = \left[\frac{\sum_{i=1}^{m} \left| \lambda_i - \lambda_{t_i}^{II} \right|}{n} : \frac{\sum_{i=1}^{m} \lambda_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{m} \left| \lambda_i - \lambda_{t_i}^{II} \right|}{\sum_{i=1}^{m} \lambda_i} \cdot 100 = \frac{3{,}7}{22{,}8} \cdot 100 = 16{,}23\%$$

- if the proceeding's structure which draws up the trend for λ variable, where λ **= the annual growth of the Real G.D.P. in United States,** selects an exponential exposure $\lambda_{t_i} = ab^{t_i}$, *a* and *b* will be [4]:

Table 8. The „radiography" for the annual growth's values concerning the real G.D.P. in the United States, if this indicates an exponential exposure

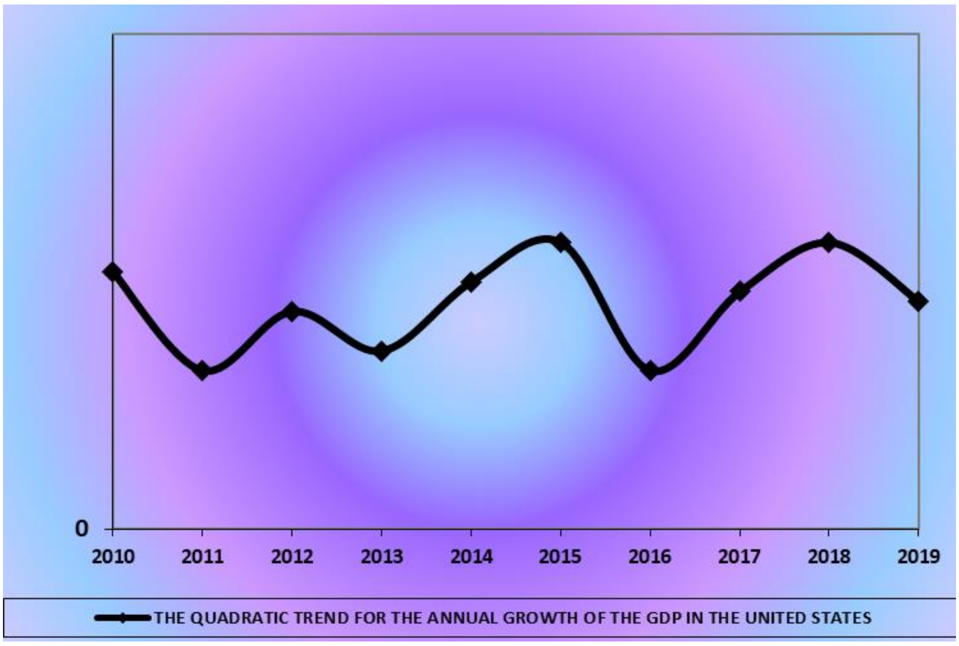
YEARS	THE ANNUAL GROWTH OF THE REAL G.D.P. IN THE UNITED STATES OF AMERICA (%) (λ_i)	EXPONENTIAL TENDENCY					
		t_i	$\lg \lambda_i$	$t_i \lg \lambda_i$	$\lg \lambda_{t_i} = \lg a + t_i \lg b$	$\lambda_{t_i} = ab^{t_i}$	$\lvert\lambda_i - \lambda_{t_i}\rvert$
2010	**2,6**	-5	0,414973348	-2,074866740	0,310267307	2,042995015	0,6
2011	**1,6**	-4	0,204119982	-0,816479930	0,317925517	2,079340043	0,5
2012	**2,2**	-3	0,342422680	-1,027268042	0,325583727	2,116331650	0,1
2013	**1,8**	-2	0,255272505	-0,510545010	0,333241937	2,153981342	0,4
2014	**2,5**	-1	0,397940008	-0,397940008	0,340900147	2,192300824	0,3
2015	**2,9**	+1	0,462397997	+0,462397997	0,356216567	2,270997034	0,6
2016	**1,6**	+2	0,204119982	+0,408239965	0,363874777	2,311398233	0,7
2017	**2,4**	+3	0,380211241	+1,140633725	0,371532987	2,352518173	0,1
2018	**2,9**	+4	0,462397997	+1,849591992	0,379191197	2,394369639	0,5
2019	**2,3**	+5	0,361727836	+1,808639180	0,386849407	2,436965646	0,1
TOTAL	**22,8**	0	3,485583576	0,842403129			3,9

$$\lg a = \frac{3{,}485583576 \cdot 110}{10 \cdot 110} = 0{,}348558357 \qquad \lg b = \frac{10 \cdot 0{,}842403129}{10 \cdot 110} = 0{,}00765821$$

$$v_{\exp} = \left[\frac{\sum_{i=1}^{n} \left| \lambda_i - \lambda_{t_i}^{\exp} \right|}{n} : \frac{\sum_{i=1}^{n} \lambda_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \lambda_i - \lambda_{t_i}^{\exp} \right|}{\sum_{i=1}^{n} \lambda_i} \cdot 100 = \frac{3{,}9}{22{,}8} \cdot 100 = 17{,}11\%$$

$$v_{II} = 16{,}23\% < v_I = 16{,}67\% < v_{\exp} = 17{,}11\%$$

The values regarding the **annual growth of the real G.D.P. in United States of America**, in the period 2010-2019, hit a quadratic „target" $\lambda_{t_i} = a + b \cdot t_i + ct_i^2$.



Graph 2. The quadratic „radiography" of the statistical data which show us the „wellness" concerning the annual growth of the Real G.D.P. in the United States of America, between 2010-2019

$$\lambda_{2021}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 7 + 0{,}005481238 \cdot 7^2 = 2{,}8\%$$
$$\lambda_{2022}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 8 + 0{,}005481238 \cdot 8^2 = 2{,}9\%$$
$$\lambda_{2023}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 9 + 0{,}005481238 \cdot 9^2 = 3{,}0\%$$
$$\lambda_{2024}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 10 + 0{,}005481238 \cdot 10^2 = 3{,}2\%$$
$$\lambda_{2025}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 11 + 0{,}005481238 \cdot 11^2 = 3{,}3\%$$
$$\lambda_{2026}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 12 + 0{,}005481238 \cdot 12^2 = 3{,}5\%$$
$$\lambda_{2027}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 13 + 0{,}005481238 \cdot 13^2 = 3{,}7\%$$
$$\lambda_{2028}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 14 + 0{,}005481238 \cdot 14^2 = 3{,}8\%$$
$$\lambda_{2029}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 15 + 0{,}005481238 \cdot 15^2 = 4{,}0\%$$
$$\lambda_{2030}^{THE\_REAL\_G.D.P.'S\_ANNUAL\_GROWTH} = 2{,}219705882 + 0{,}039090909 \cdot 16 + 0{,}005481238 \cdot 16^2 = 4{,}3\%$$

3. The proceeding' s steps, which follow the statistical values concerning the G.D.P. per capita in PPP for the United States of America, for to achieve them wellness' diagnostic

Table 9 The G.D.P. per capita in PPP's configuration in the United States of America, between 2010-2018

YEARS	G.D.P. PER CAPITA IN PPP THE UNITED STATES OF AMERICA ($) (ω_i)
2010	49479,25
2011	49883,11
2012	50632,44
2013	51208,89
2014	52080,79
2015	53187,57
2016	53631,76
2017	54470,80
2018	55719,12

Source: „Trade Economics"

- if the proceeding's structure which draws up the trend for ω variable, where ω = **G.D.P. per capita in PPP for the United States of America**, selects a linear exposure $\omega_{t_i} = a + b \cdot t_i$, *a* and *b* will be [4]:

Table 10. The „radiography" for the values of the G.D.P. per capita in PPP, in the United States of America, if this indicates a linear exposure

YEARS	G.D.P. PER CAPITA IN PPP THE UNITED STATES ($) (ω_i)	LINEAR TENDENCY				
		t_i	t_i^2	$t_i\omega_i$	$\omega_{t_i} = a + bt_i$	$\lvert\omega_i - \omega_{t_i}\rvert$
2010	**49479,25**	-4	16	-197917,00	49141,53422	337,72
2011	**49883,11**	-3	9	-149649,33	49919,86539	36,75
2012	**50632,44**	-2	4	-101264,88	50698,19656	65,76
2013	**51208,89**	-1	1	-51208,89	51476,52772	267,64
2014	**52080,79**	0	0	0	52254,85889	174,07
2015	**53187,57**	+1	1	+53187,57	53033,19006	154,38
2016	**53631,76**	+2	4	+107263,52	53811,52122	179,76
2017	**54470,80**	+3	9	+163412,40	54589,85239	119,05
2018	**55719,12**	+4	16	+222876,48	55368,18356	350,94
TOTAL	**470293,73**	0	60	46699,87		1686,07

$$a = \frac{470293{,}73 \cdot 60}{9 \cdot 60} = 52254{,}85889 \qquad b = \frac{9 \cdot 46699{,}87}{9 \cdot 60} = 778{,}3311667$$

$$v_I = \left[\frac{\sum_{i=1}^{n} \left| \omega_i - \omega_{t_i}^I \right|}{n} : \frac{\sum_{i=1}^{n} \omega_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \omega_i - \omega_{t_i}^I \right|}{\sum_{i=1}^{n} \omega_i} \cdot 100 = \frac{1686{,}07}{470293{,}73} \cdot 100 = 0{,}358514241\%$$

- if the proceeding's structure which draws up the trend for ω variable, where ω = **G.D.P. per capita in PPP for the United States of America**, selects a quadratic exposure $\omega_{t_i} = a + b \cdot t_i + ct_i^2$, *a* and *b* will be [4]:

Table 11. The „radiography" for the values of the G.D.P. per capita in PPP, in the United States of America, if this indicates a quadratic exposure

YEARS	G.D.P. PER CAPITA IN PPP THE UNITED STATES ($) (ω_i)	PARABOLIC TENDENCY						
		t_i	t_i^2	t_i^3	t_i^4	$t_i^2\omega_i$	$\omega_{t_i} = a + b\xi_i + c\xi_i^2$	$\lvert\omega_i - \omega_{t_i}\rvert$
2010	**49479,25**	-4	16	-64	256	791668,00	49399,71139	79,54
2011	**49883,11**	-3	9	-27	81	448947,00	49984,40968	101,30
2012	**50632,44**	-2	4	-8	16	202529,76	50624,43165	8,01
2013	**51208,89**	-1	1	-1	1	51208,89	51319,77729	110,89
2014	**52080,79**	0	0	0	0	0	52070,44662	10,34
2015	**53187,57**	+1	1	+1	1	53187,57	52876,43963	311,13
2016	**53631,76**	+2	4	+8	16	214527,04	53737,75631	106,00
2017	**54470,80**	+3	9	+27	81	490237,20	54654,39668	183,60
2018	**55719,12**	+4	16	+64	256	891505,92	55626,36072	92,76
TOTAL	**470293,73**	0	60	0	708	3143811,38		1003,57

$$a = \frac{708 \cdot 470293{,}73 - 60 \cdot 3143811{,}38}{9 \cdot 708 - 60^2} = 52070{,}44662 \qquad b = \frac{46699{,}87}{60} = 778{,}3311667$$

$$c = \frac{9 \cdot 3143811{,}38 - 60 \cdot 470293{,}73}{9 \cdot 708 - 60^2} = 27{,}66183983$$

$$v_{II} = \left[\frac{\sum_{i=1}^{n} \left| \omega_i - \omega_{t_i}^{II} \right|}{n} : \frac{\sum_{i=1}^{n} \omega_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \omega_i - \omega_{t_i}^{II} \right|}{\sum_{i=1}^{n} \omega_i} \cdot 100 = \frac{1003{,}57}{470293{,}73} \cdot 100 = 0{,}21339217\%$$

- if the proceeding's structure which draws up the trend for ω variable, where ω = **G.D.P. per capita in PPP for the United States of America,** highlights an exponential leaning $\omega_{t_i} = ab^{t_i}$, *a* and *b* will be [4]:

Table 12. The „radiography" for the values of the G.D.P. per capita in PPP, in the United States of America, if this indicates an exponential exposure

YEARS	G.D.P. PER CAPITA IN PPP THE UNITED STATES ($) (ω_i)	EXPONENTIAL TENDENCY					
		t_i	$\lg \omega_i$	$t_i \lg \omega_i$	$\lg \omega_{t_i} = \lg a + t_i \lg b$	$\omega_{t_i} = ab^{t_i}$	$\lvert\omega_i - \omega_{t_i}\rvert$
2010	**49479,25**	-4	4,694423108	-18,77769243	4,691976054	49201,24065	278,01
2011	**49883,11**	-3	4,697953522	-14,09386057	4,698432827	49938,19341	55,08
2012	**50632,44**	-2	4,704428857	-9,408857713	4,705117914	50712,83785	80,4
2013	**51208,89**	-1	4,709345362	-4,709345362	4,711346373	51445,37923	236,49
2014	**52080,79**	0	4,716677563	0	4,717803146	52215,94545	135,15
2015	**53187,57**	+1	4,725810149	4,725810149	4,724259919	52998,05347	189,52
2016	**53631,76**	+2	4,729422049	9,458844098	4,730716692	53791,87617	160,12
2017	**54470,80**	+3	4,736163754	14,20849126	4,737173465	54597,89010	127,09
2018	**55719,12**	+4	4,746004249	18,98401700	4,743630238	55415,37009	303,75
TOTAL	**470293,73**	0	42,46022831	0,387406432			1565,61

$$\lg a = \frac{42,46022831 \cdot 60}{9 \cdot 60} = 4,717803146 \qquad \lg b = \frac{9 \cdot 0,387406432}{9 \cdot 60} = 0,006456773$$

$$v_{\exp} = \left[\frac{\sum_{i=1}^{n} \left| \omega_i - \omega_{t_i}^{\exp} \right|}{n} : \frac{\sum_{i=1}^{n} \omega_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \omega_i - \omega_{t_i}^{\exp} \right|}{\sum_{i=1}^{n} \omega_i} \cdot 100 = \frac{1565,61}{470293,73} \cdot 100 = 0,33\%$$

$$v_{II} = 0,21\% < v_{\exp} = 0,33\% < v_I = 0,36\%$$

The values concerining the **G.D.P. per capita in PPP for the United States of America**, between 2010-2019, touch a quadratic „target" $\omega_{t_i} = a + b \cdot t_i + ct_i^2$

$$\omega_{2021}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 7 + 27,66183983 \cdot 7^2 = 58874,19\_\$$$

$$\omega_{2022}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 8 + 27,66183983 \cdot 8^2 = 60067,5\_\$$$

$$\omega_{2023}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 9 + 27,66183983 \cdot 9^2 = 61316,0\_\$$$

$$\omega_{2024}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 10 + 27,66183983 \cdot 10^2 = 62619,9\_\$$$

$$\omega_{2025}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 11 + 27,66183983 \cdot 11^2 = 63979,2\_\$$$

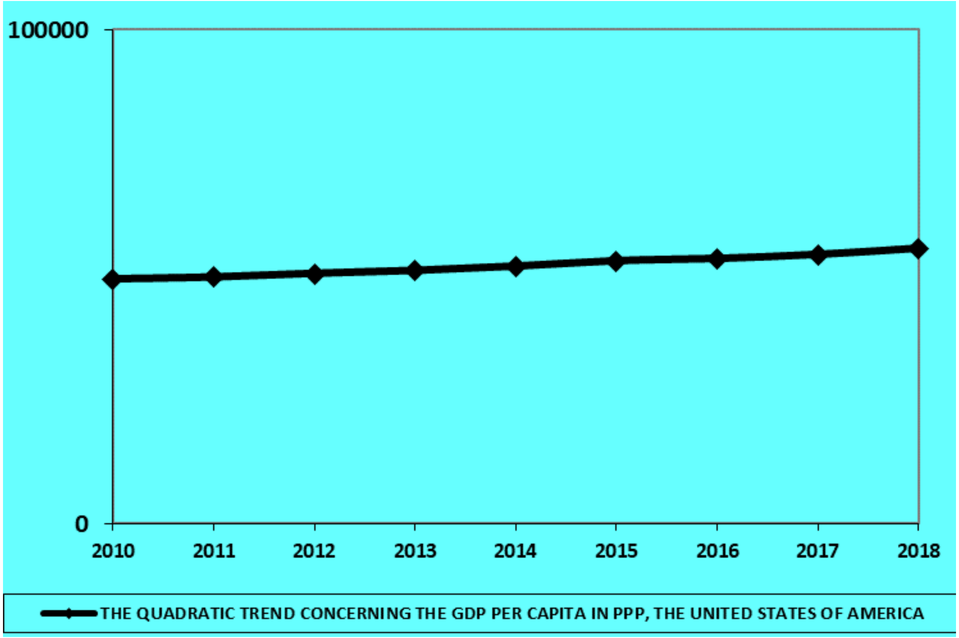
$$\omega_{2026}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 12 + 27,66183983 \cdot 12^2 = 65393,7\_\$$$

$$\omega_{2027}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 13 + 27,66183983 \cdot 13^2 = 66863,6\_\$$$

$$\omega_{2028}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 14 + 27,66183983 \cdot 14^2 = 68388,8\_\$$$

$$\omega_{2029}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 15 + 27,66183983 \cdot 15^2 = 69969,3\_\$$$

$$\omega_{2030}^{GDP\_PER\_CAPITA\_PPP} = 52070,44662 + 778,3311667 \cdot 16 + 27,66183983 \cdot 16^2 = 71605,2\_\$$$



Graph 3 The quadratic „radiograhy" of the statistical data which show us the „wellness" of the G.D.P. per capita in PPP for the United States, between 2010-2019

4. The proceeding' s steps, which pursue the values regarding the G.D.P. per capita in PPS for the United States of America, for to achieve them wellness' diagnostic

Table 13. The G.D.P. per capita in PPS's configuration in the United States, between 2010-2018

YEARS	G.D.P. PER CAPITA IN PPS THE UNITED STATES OF AMERICA Index (EU27_2020=100) (γ_i)
2010	**147**
2011	**145**
2012	**148**
2013	**147**
2014	**148**
2015	**149**
2016	**143**
2017	**140**
2018	**142**

Source: „EUROSTAT"

- if the proceeding's structure which draws up the trend for γ variable, where γ = **G.D.P. per capita in PPS for the United States of America**, selects a linear exposure $\gamma_{t_i} = a + b \cdot t_i$, *a* and *b* will be [4]:

Table 14. The „radiography" for the values of the G.D.P. per capita in PPS, in the United States of America, if this indicates a linear exposure

YEARS	G.D.P. PER CAPITA IN PPS THE UNITED STATES ($) (γ_i)	LINEAR TENDENCY				
		t_i	t_i^2	$t_i \omega_i$	$\gamma_{t_i} = a + bt_i$	$\lvert \gamma_i - \gamma_{t_i} \rvert$
2010	**147**	-4	16	-588	148,1111110	1
2011	**145**	-3	9	-435	147,5944444	3
2012	**148**	-2	4	-296	146,8777777	1
2013	**147**	-1	1	-147	146,1611111	1
2014	**148**	0	0	0	145.4444444	3
2015	**149**	+1	1	149	144,7277777	4
2016	**143**	+2	4	286	144,0111111	1
2017	**140**	+3	9	420	143,2944444	3
2018	**142**	+4	16	568	142,5777777	1
TOTAL	**1309**	0	60	-43		18

$$a = \frac{1309{,}73 \cdot 60}{9 \cdot 60} = 145{,}4444444 \qquad b = \frac{9 \cdot (-43)}{9 \cdot 60} = -0{,}716666666$$

$$v_I = \left[\frac{\sum_{i=1}^{n} \left| \gamma_i - \gamma_{t_i}^I \right|}{n} : \frac{\sum_{i=1}^{n} \gamma_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \gamma_i - \gamma_{t_i}^I \right|}{\sum_{i=1}^{n} \gamma_i} \cdot 100 = \frac{18}{1309} \cdot 100 = 1{,}37\%$$

- if the proceeding's structure which draws up the trend for γ variable, where γ = **G.D.P. per capita in PPS for the United States of America**, selects a quadratic exposure $\gamma_{t_i} = a + b \cdot t_i + ct_i^2$, *a* and *b* will be [4]:

Table 15. The „radiography" for the values of the G.D.P. per capita in PPS, in the United States of America, if this indicates a quadratic exposure

YEARS	G.D.P. PER CAPITA IN PPS THE UNITED STATES (γ_i)	PARABOLIC TENDENCY						
		t_i	t_i^2	t_i^3	t_i^4	$t_i^2\gamma_i$	$\gamma_{t_i} = a + b\gamma_i + c\gamma_i^2$	$\left\|\gamma_i - \gamma_{t_i}\right\|$
2010	**147**	-4	16	-64	256	2352	145,9575757	1
2011	**145**	-3	9	-27	81	1305	147,0060606	2
2012	**148**	-2	4	-8	16	592	147,5502164	1
2013	**147**	-1	1	-1	1	147	147,5900433	1
2014	**148**	0	0	0	0	0	147,1255411	1
2015	**149**	+1	1	+1	1	149	146,1567099	3
2016	**143**	+2	4	+8	16	572	144,6835498	2
2017	**140**	+3	9	+27	81	1260	142,7060606	3
2018	**142**	+4	16	+64	256	2272	140,2242424	2
TOTAL	**1309**	0	60	0	708	8649		16

$$a = \frac{708 \cdot 1309 - 60 \cdot 8649}{9 \cdot 708 - 60^2} = 147{,}1255411 \quad b = -\frac{43}{60} = -0{,}716666666$$

$$c = \frac{9 \cdot 8649 - 60 \cdot 1309}{9 \cdot 708 - 60^2} = -0{,}252164502$$

$$v_{II} = \left[\frac{\sum_{i=1}^{n} \left| \gamma_i - \gamma_{t_i}^{II} \right|}{n} : \frac{\sum_{i=1}^{n} \gamma_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \gamma_i - \gamma_{t_i}^{II} \right|}{\sum_{i=1}^{n} \gamma_i} \cdot 100 = \frac{16}{1309} \cdot 100 = 1{,}22\%$$

- if the proceeding's structure which draws up the trend for γ variable, where γ = **G.D.P. per capita in PPS for the United States of America,** selects an exponential exposure $\gamma_{t_i} = ab^{t_i}$, *a* and *b* will be [4]:

Table 16. The „radiography" for the values of the G.D.P. per capita in PPS, in the United States of America, if this indicates an exponential exposure

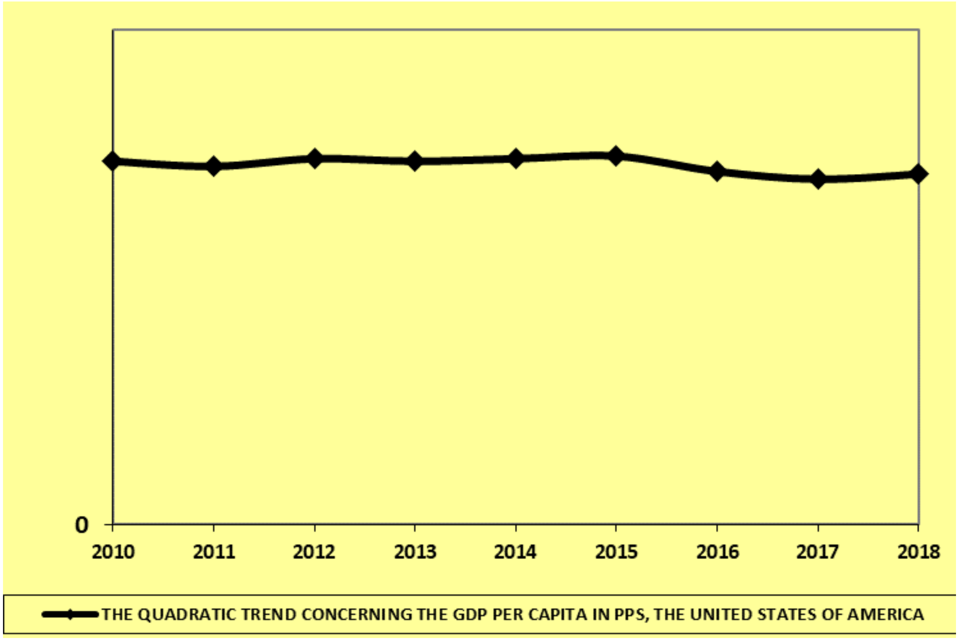
YEARS	G.D.P. PER CAPITA IN PPS THE UNITED STATES (γ_i)	EXPONENTIAL TENDENCY					
		t_i	$\lg \gamma_i$	$t_i \lg \gamma_i$	$\lg \gamma_{t_i} = \lg a + t_i \lg b$	$\gamma_{t_i} = ab^{t_i}$	$\left\|\gamma_i - \gamma_{t_i}\right\|$
2010	**147**	-4	2,167317335	-8,669269339	2,171261751	148,3411874	1
2011	**145**	-3	2,161368002	-6,484104007	2,169098113	147,6039953	3
2012	**148**	-2	2,170261715	-4,340523431	2,166934475	146,8704667	1
2013	**147**	-1	2,167317335	-2,167317335	2,164770837	146,1405835	1
2014	**148**	0	2,170261715	0	2,162607199	145,4143275	3
2015	**149**	+1	2,173186268	2,173186268	2,160443561	144,6916806	4
2016	**143**	+2	2,155336037	4,310672075	2,158279923	143,9726250	1
2017	**140**	+3	2,146128036	6,438384107	2,156116285	143,2571428	3
2018	**142**	+4	2,152288344	8,609153378	2,153952647	142,5452162	0
TOTAL	**1309**	0	19,46346479	-0,129818284			17

$$\lg a = \frac{19{,}4346479 \cdot 60}{9 \cdot 60} = 2{,}162607199 \quad \lg b = \frac{9 \cdot (-0{,}129818284)}{9 \cdot 60} = -0{,}002163638$$

$$v_{\exp} = \left[\frac{\sum_{i=1}^{n} \left| \gamma_i - \gamma_{t_i}^{\exp} \right|}{n} : \frac{\sum_{i=1}^{n} \gamma_i}{n} \right] \cdot 100 = \frac{\sum_{i=1}^{n} \left| \gamma_i - \gamma_{t_i}^{\exp} \right|}{\sum_{i=1}^{n} \lambda_i} \cdot 100 = \frac{17}{1309} \cdot 100 = 1{,}30\%$$

$$v_{II} = 1{,}22\% < v_I = 1{,}37\% < v_{\exp} = 1{,}30\%$$

The values regarding the **G.D.P. per capita in PPS for the United States of America**, in the period 2010-2019, hit a quadratic „target" $\gamma_{t_i} = a + b \cdot t_i + ct_i^2$



Graph 4 The quadratic „radiography" of the statistical data which show us the „wellness" of the G.D.P. per capita in PPS for the United States, between 2010-2019

$$\gamma_{2021}^{GDP\_PER\_CAPITA\_PPS} = 147{,}1255411 + (-0{,}716666666) \cdot 7 + (-0{,}252164502) \cdot 7^2 = 129{,}8$$

5. Conclusions

We can see in the period 2021-2030, rises concerning the United States of America's real G.D.P., from $19164,5 billions in 2021, to $20368,9 billions in 2030. Alike, we can observe between 2021-2030, increases in relative sizes, regarding the real G.D.P.'s annual growth for the United States of America, from 2,8 % in 2021, to 4,3 % in 2030. Also, we can remark in the period 2021-2030, augmentations concerning the United States of America's G.D.P. per capita in PPP, from $58874,19 in 2021, to $71605,2 in 2030.

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