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ASPECTS OF CHINA'S ECONOMIC DEVELOPMENT

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Abstract
The 25 year period of transition in newly independent post-USSR states did not bring either of them to a desired target – mid-European level of economy. Against this sad background China represents a unique example of successful economic reforms, which lead to rapid economic development and accelerated increase of leaving standards. In spite of structural and legislative changes, the success of China's economic reforms was determined by extensive industrialization based on downstream processing of national and imported primary commodities. Privatization in this sector and support of private businesses was expressed by creation of corresponding financial instruments and, first of all, by foundation of commodity exchanges of the global importance. The phase of extensive economic development has not been finished in China yet, however, such extensive development cannot be sustainable for more than 8-10 years, and the greatest challenge for China will be a step-by-step construction of a post-industrial economy and society in coming years. Example of China may show a guideline for the newly independent states: only synergetic amalgamation of, on one hand, a civil society and, on the other hand, sustainable exploitation of national natural resources and downstream processing of national primary commodities may ensure irreversible merging of newly independent states into the civilized world.

Key words: *Newly independent states; China; GDP; primary commodity; downstream processing; economic growth.*

JEL Classification: *O10, O11, O12*

I. INTRODUCTION

Hundreds of articles and monographs have been published on collapse of the USSR and post-Soviet transformation into newly independent states (NIS); dozens of theories on such transformation, recently generalized by Kollmorgen (Kollmorgen, 2013), have been launched. However, all of them enter within the framework proposed by Dorn (Dorn, 1991) in 1991 – from a planned economy to a market economy.

The economic breakdown of the USSR, as cited by Hanke (Hanke, 2004), started with the famous speech by President Reagan: "…we [e.g. the USA] have an oil weapon, too. The strategic reserve should be used to bloody…" the USSR. In 1981 the President Reagan's administration abandoned the "policy of détente" versus the USSR and persuaded Saudi Arabia to flood the world market with cheap oil at the same time providing inner market with petroleum from strategic reserves. These measures, known as "a new political economy of oil" (Morse, 1999), according to a great number of investigations (Hilton, http://wais.stanford.edu/History; Strayer, 1998), ultimately led to the collapse of the USSR.

Dissolution of the USSR immediately led to huge economic crisis in all the new independent states (NIS) caused by the total economic disintegration of the USSR infrastructure and economic links (Tvalchrelidze, 2011). Such a crisis, foreseen by Brzezinski (Brzezinski, 1998) in 1998, determined a huge poverty, even famine in the post-Soviet space, and other socialist republics, left alone in front of severe reality, started to construct their independent statehood (Mankoff, 2010; Silagadze, 2013).

Zbigniew Brzezinski (Brzezinski, 1998), who in the late eighties already predicted collapse of the USSR, had designed main geostrategic imperatives, which should ensure primacy of the USA in the coming unipolar

world. Among others, first, amalgamation of the post-Soviet countries into the international commodity markets via implementation of global projects like Baku-Tbilisi-Ceyhan oil pipeline, and, second, global expansion of the USA economic model and financial instruments were mentioned. The USA consecutive administrations followed these recommendations and included the world financial institutions like the World Bank and the International Monetary Fund in this global project. Corresponding contribution was also made by the United Nations Development Programme (UNDP) via launching initial capacity strengthening initiative under the umbrella of combating poverty. Synergistically, these three institutions were extremely active in the new independent states (NIS) by creating new national currencies, introducing modern fiscal systems, reforming the national banks, developing private bank networks, and supporting private businesses. Ultimately, these states were included into the world financial, mercantile and commodity markets (Silagadse and Tokmazishvili, 2009). Ultimately, almost all ancient Soviet republics surmounted the most vulnerable phase of poverty and step-by-step started developing. Fig. 1 and 2 demonstrate year-to-year GDP changes in some selected post-soviet countries. This index was calculated as a simple increment to GDP value of the corresponding year in current US Dollars as released by the World Bank Group (Tisdell, 2008) versus the previous year. It may be seen that the slow economic growth was interrupted twice, in 1999 – due to the Russian finance crisis, and in 2008 – due to the world economic recessions (Silagadze, 2013). In 2014 the sanctions against Russia also had their important impact, namely, in commodity exporting countries (see below).

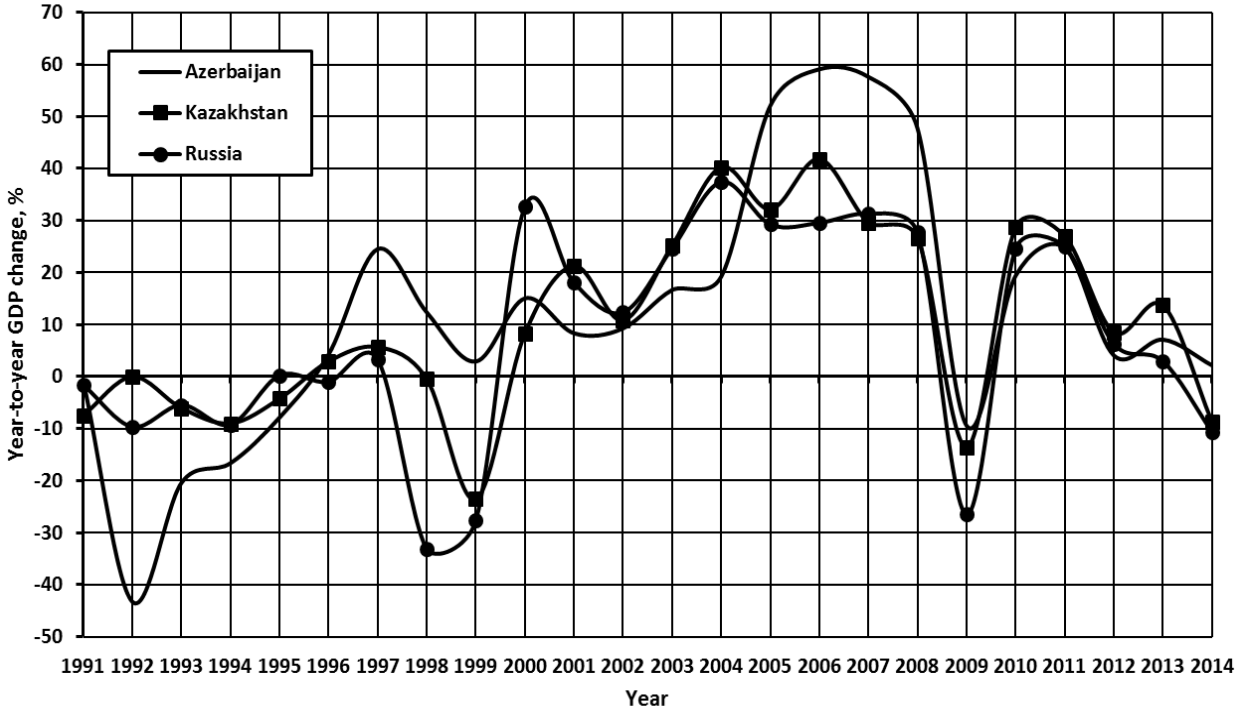

Figure 1. Year-to-Year GDP Change in Azerbaijan, Kazakhstan and Russia

Different NIS started transformation of their economic and social infrastructure using quite different philosophy. At first glance, three different approaches may be identified (Abbott and Wallance, 2010; Bremmer, 2006; Hinley, 2008; Papava, 2006; Silagadze, 2013):

1. Countries like Georgia, Moldova, partly Ukraine began cardinal reconstruction of their economic and social infrastructure via massive privatization, reform of the governance and social security systems, rejuvenation of the banking sector, etc.
2. Countries like Belarus and the great majority of Central Asian republics preserved autocratic regime of governance.
3. Countries rich in natural resources like Russia, Kazakhstan, Azerbaijan, and Turkmenistan built a certain type of state capitalism via extensive exploitation of mineral deposits and hydrocarbon fields and exports of primary commodities.

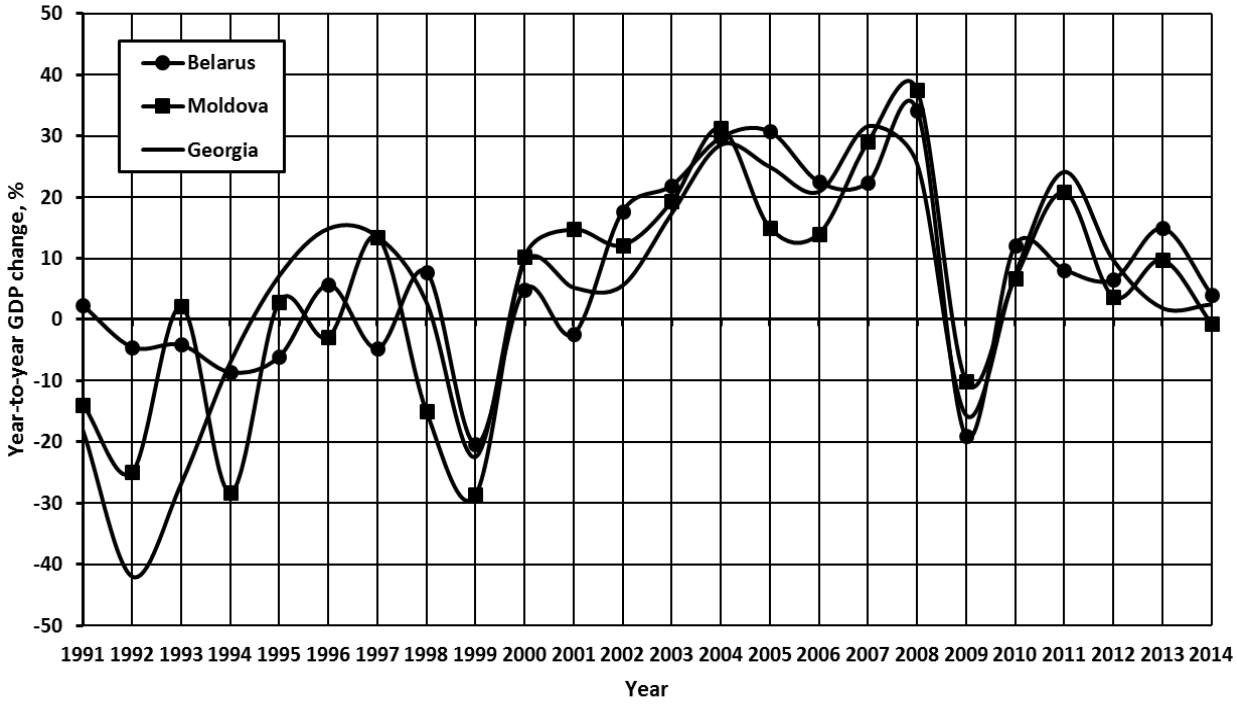

Figure 2. Year-to-Year GDP Change in Belarus, Moldova and Georgia

The most picturesque example of the latter approach is President Putin's politics who step-by-step substituted the neoliberal economic policy of Eltsin's administration by a Russian model of the state capitalism. The main trends of his economic and social reform were as follows (http://www.russiaprofile.org):

1. Strong economic growth based on extensive exploitation of natural resources
2. Foreign-debt reduction
3. Launching of the stabilization fund
4. Fiscal stabilization and tax reform
5. Launching of national projects including healthcare, education, housing, and agriculture
6. State control of strategic industries
7. Reduction of inflation
8. Social reform including increase of pensions and effective social insurance
9. Reduction of unemployment
10. Integration into the world economy.

Hence, neither of these policies brought newly independent states to the desired target – mid-European level of economy. Fig. 3 displays GDP per capita of NIS as released by the World Bank Group (Http://data.worldbank.org/indicator/) compared with the mid-European figure. It may be seen that the average EU GDP per capita is 2.5 – 29.5 times higher than that in different NIS. The conclusion is very simple: "Something is rotten in the state of Denmark"[3] – the newly independent states, despite of a lot of optimistic opinions (. Roaf, Atoyan, Joshi et al 2014), are moving in the wrong direction. That is why it is extremely important to analyze a successful experience of economic reforms and elaborate some possible trends of development for NIS.

[3] Shakespeare, "Hamlet", Act 1, Scene 4.

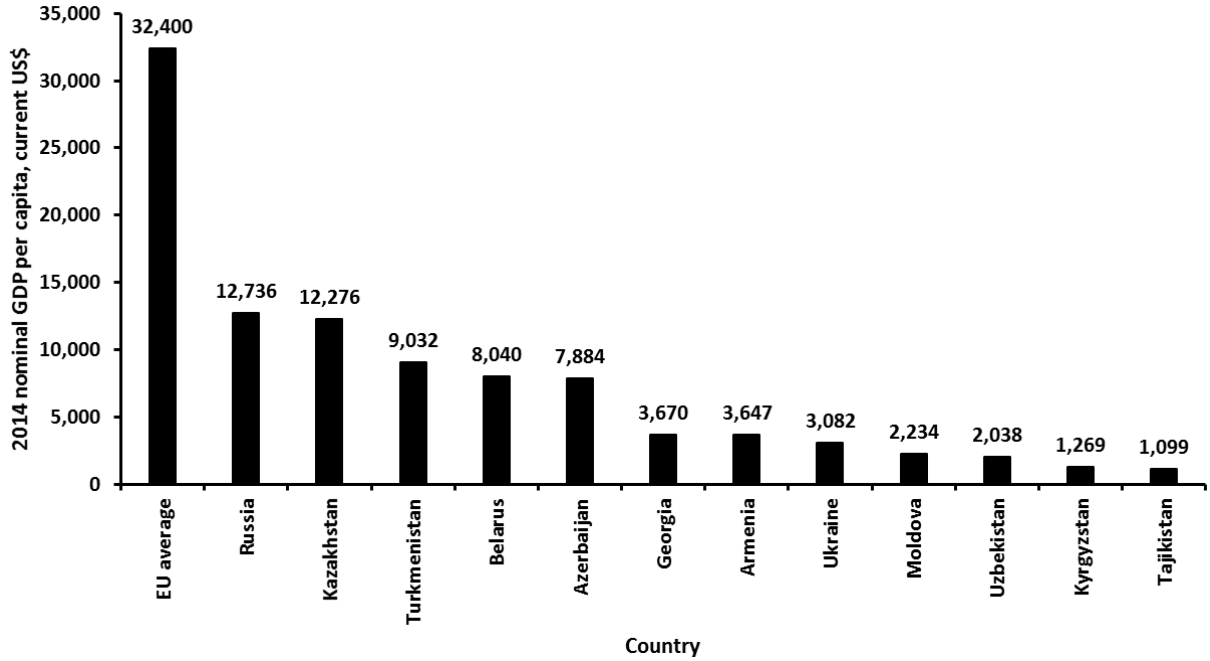

Figure 3. Nominal GDP per Capita in NIS compared with EU

II. ECONOMIC DEVELOPMENT IN CHINA

China is displaying the unique example of successful economic reforms. Fig. 4 demonstrates an impressive growth of GDP per capita expressed in current US$ [60] from US$ 193.3 in 1980 to US$ 7,593.9 in 2014. An enormous amount of publications on China's reforms mainly deals with the following problems:

1. The political economy of Chinese reforms (Breslin, 2007; Breznitz, and Murphree 2011; et al)
2. Role of government in Chinese reforms (Dajian, 2008; Garnaut, Fang et al 2013)
3. Chronology and statistics of Chinese reforms (Jaggi, Rundle et al 1996)
4. Role of Chinese reforms for global economy and the globalized world (Song, Woo et al 2008)
5. Sustainability of Chinese reforms in XXI Century (Garnaut, Fang et al 2013).

Garnaut, Fang, and Song (Garnaut, 2008) identified three periods of Chinese reforms. The first period, roughly from 1978 to 1984, is a strong growth in agricultural and rural incomes; the second period from 1985 to 2011 displays investment expansion and the third period, which commenced in 2012, is transition to a modern economy. Thus, Chinese reforms have not finished yet (Tisdell, 2008), and coming years represent a certain challenge to sustain the economic growth (Song and Woo, 2008). Moreover, in 2008 Weil (Weil, 2008) has declared that "China is suffering its most severe downturn in decades". However, this thesis happened to be wrong. Fig. 5 demonstrates China's GDP in current US Dollars as released by the World Bank Group. It may be seen that during 35 years the country's Gross Domestic Product has grown from US$ 189.4 billion in 1980 to US$ 10.36 trillion in 2014 with an average annual rate of 12.83%! This figure also clearly shows that the global economic crisis, which touched the great majority of world economies, has almost no impact on China's development trend.

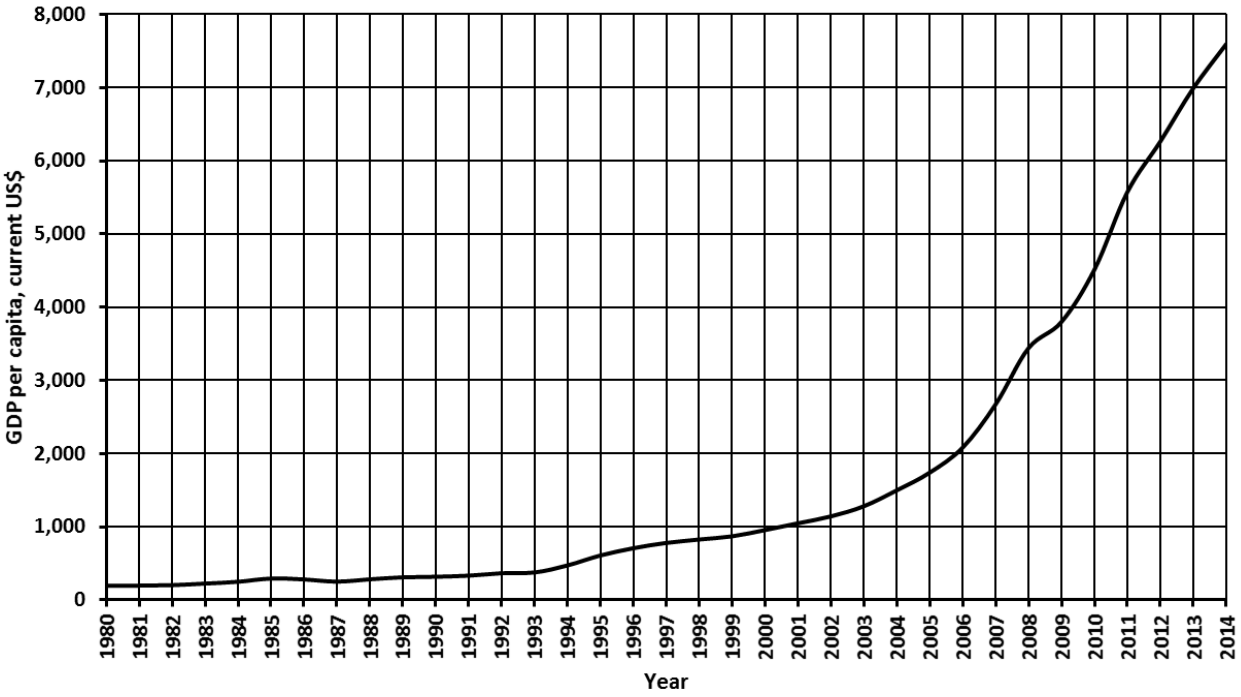

Figure 4. GDP per Capita in China in 1980-2014

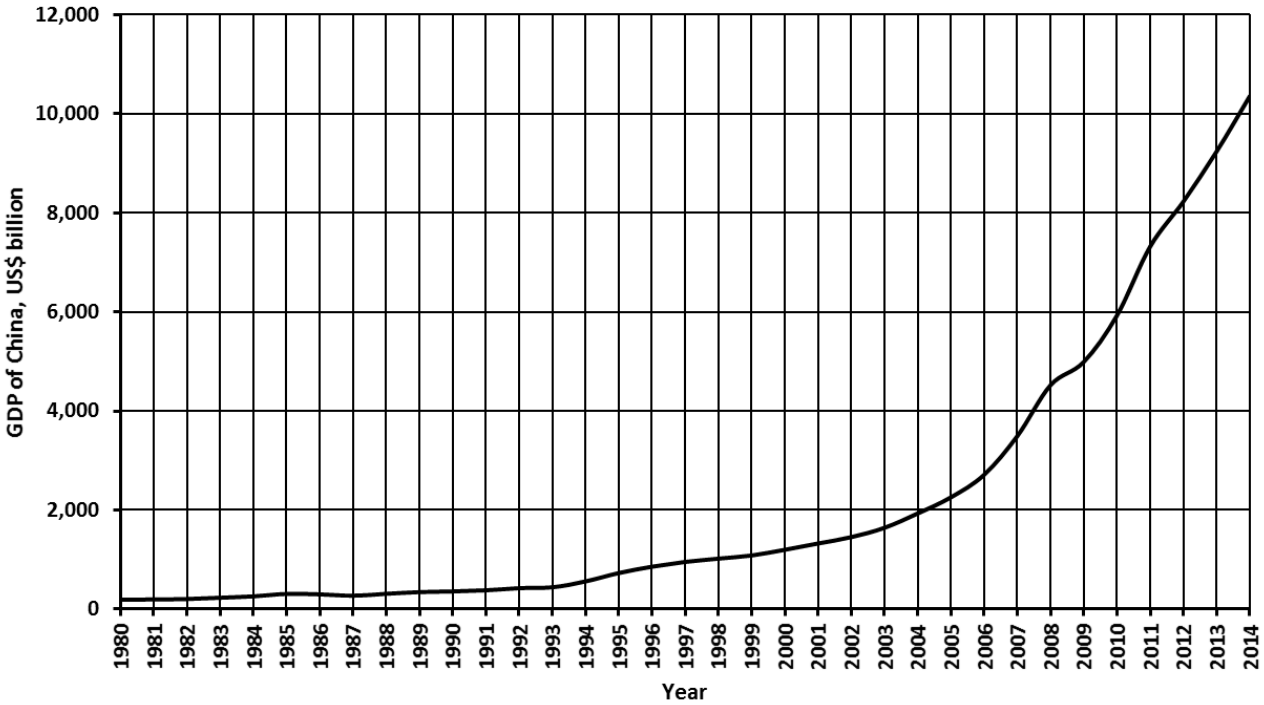

Figure 5. China's GDP in 1980-2014

Surprisingly, we know only the sole publication (McKay and Song, 2013) where China's industrialization is suggested to be the main engine of the country's development. However, we were unable to find any explicit discourse on specific features of such industrial reform.

That is why we tried to deal with the mentioned problem from an absolutely different point of view.

III. PRIMARY COMMODITIES PRODUCTION IN CHINA

The methodological basement of the analysis below is quite simple. Development of an industrial branch like metallurgy or machinery needs downstream processing of primary commodities. Morrison in his essay on China's economic rise (Morrison, 2015) mentioned this issue in a general form. Hence, the analysis crops out picturesque figures. For instance, in 2006 among the world 20 top copper smelters only 3 were Chinese. Among them the most powerful Guixi smelter was characterized by the capacity of 400,000 metric tons per year and had the 4th world rank (World copper factbook, 2007). By 2014 the capacity of the mentioned smelter has dramatically increased to 900,000 metric tons per annum and it got the 1st world rank; among the world 20 top copper smelters 8 happened to be Chinese (World copper factbook, 2014). In 2013 China produced 779 million t of steel and ensured 48.5% of world steel production (World steel in figures, 2014). Japan, which has the second world rank in steel production, manufactured only 110.6 million t or 7.04 times less. For comparison, in 2006 China had produced 422.7 million t (World steel in figures, 2007) and in 2003 – 220.1 million t of steel (World steel in figures, 2004).

Table 1 provides information on primary commodity production in China in 2013 – the last year for which the ensured information on world energy (BP Statistical Review of World Energy, 2014) and mineral (Brown, Wrighton et al 2015; Reichl, Schatz et al 2014) production does exist.

Table 1. China's World Rank and Share in Selected Primary Commodity Production

Commodity	World rank	% of world production
Oil	4	4.82
Gas	7	3.18
Coal	1	45.00
Uranium	9	2.44
Iron ore	1	45.96
Manganese ore	1	29.36
Bauxite	2	20.43
Refined copper	1	30.90
Refined lead	1	42.62
Refined zinc	1	40.17
Refined nickel	1	35.64
Refined cobalt	1	43.08
Molybdenum	1	40.74
Gold	1	14.74
Silver	2	15.67

Figures 6-8 describe dynamics of selected commodity production in China in 1980-2013. Statistical data were borrowed from well-known reviews (BP Statistical Review of World Energy, 2003-2014).

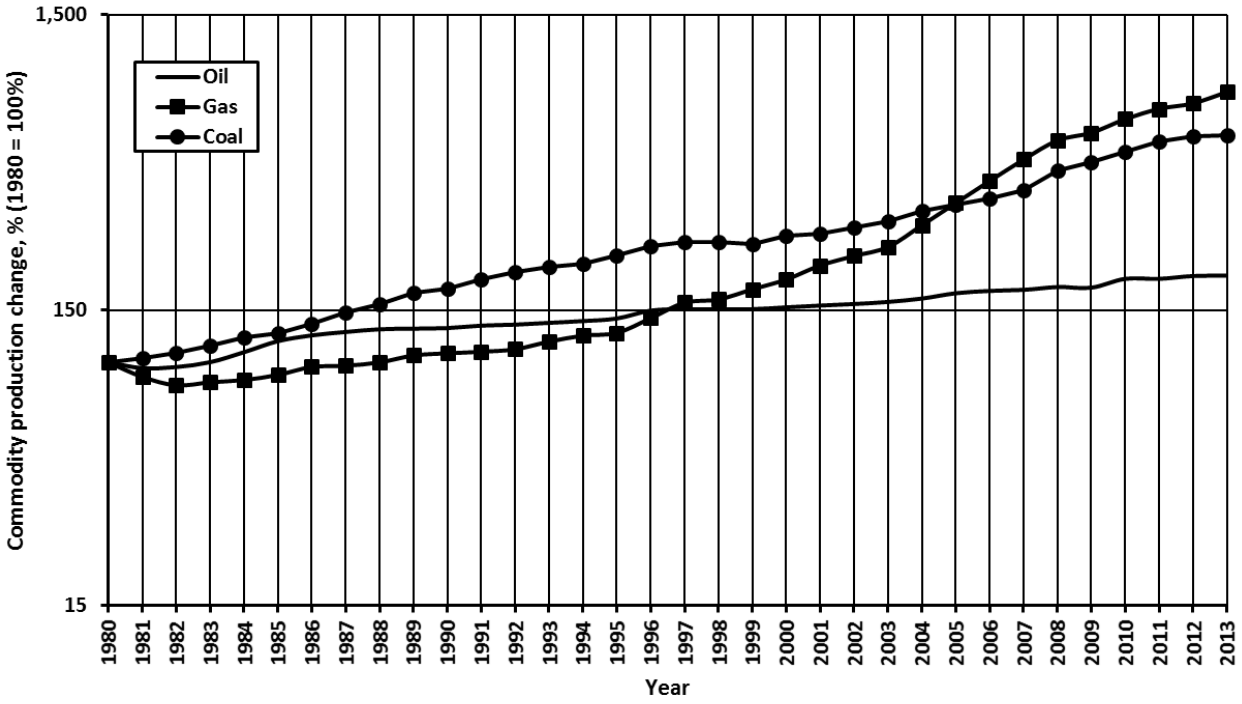

Figure 6. Energy Commodity Production Growth in China in 1980-2013 (Logarithmic Scale)

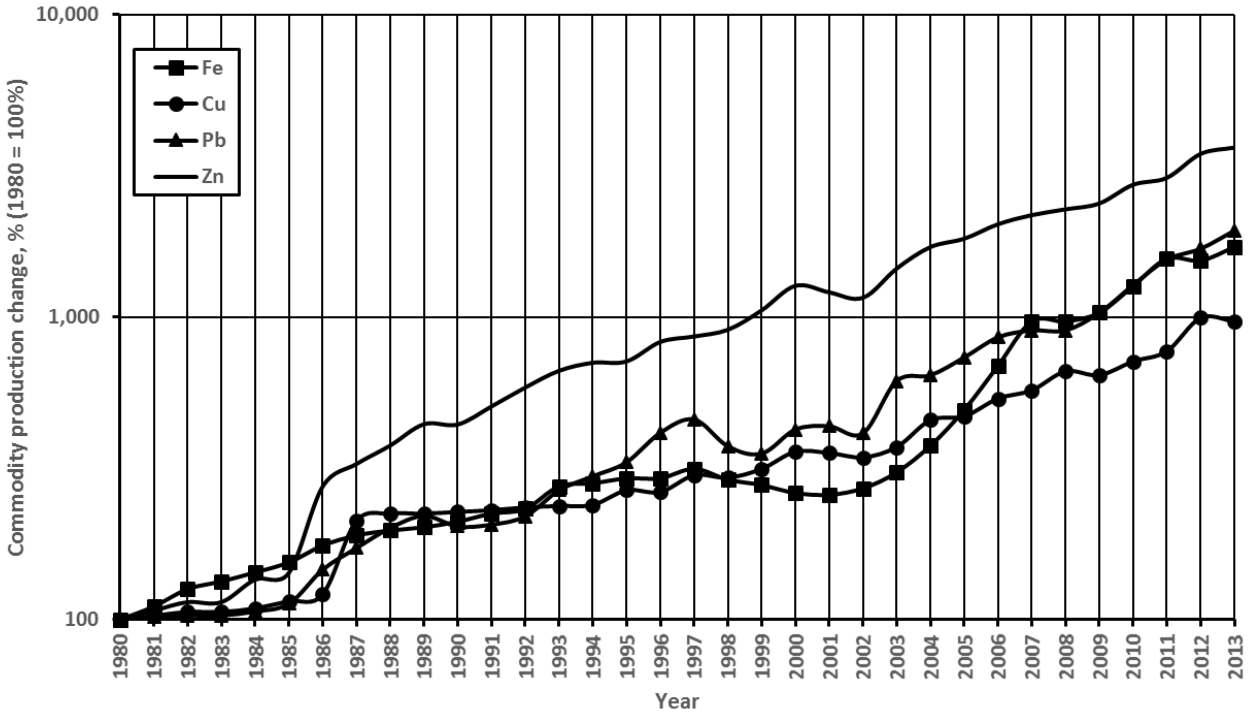

Figure 7. Iron Ore and Base Metals Production Growth in China in 1980-2013 (Logarithmic Scale)

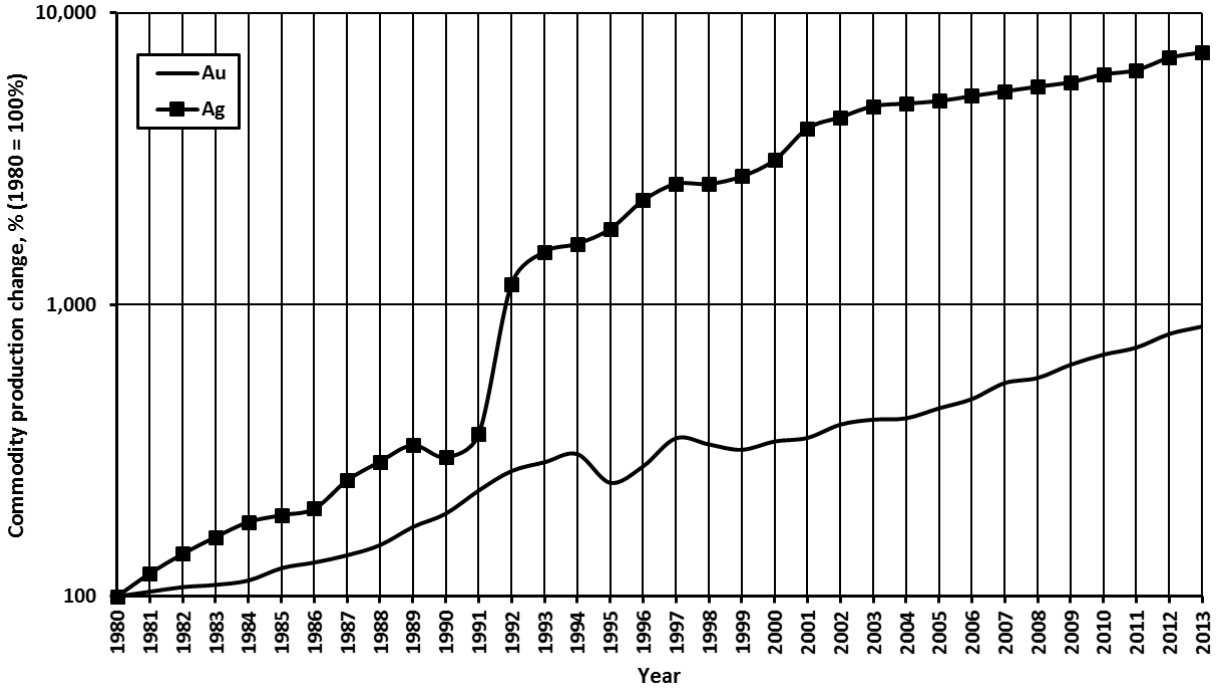

Figure 8. Gold and Silver Production Growth in China in 1980-2013 (Logarithmic Scale)

Sustainable growth of primary commodity production may be easily seen on the mentioned figures. In addition, it should be boldly outlined that China is the main primary commodity importing country (Tvalchrelidze, 2011) having the first world rank in iron ore, copper and silver imports, the second rank in oil, refined lead and gold imports, and third rank in refined zinc imports.

The second extremely important step in Chinese economic reforms was foundation of commodity exchanges of which three – Dalian Commodity Exchange, Zhengzhou Commodity Exchange and Shanghai Futures Exchange – are of the world importance (Tvalchrelidze, 2011). Such a measure at the background of international commerce rules introduction immediately merged the country to the global commodity turnover and the world cash flows. From this point of view opinion of Garnaut, Fang, and Song (Garnaut, Fang et al, 2013) that China started transition to modern economy only in 2012 is too pessimistic: at our judgment such a transition started with foundation of commodity exchanges.

IV. CHINA'S ECONOMIC DEVELOPMENT MODEL

One of co-authors of this paper has shown recently (Tvalchrelidze, 2011) that a country's GDP may be described in commodity terms as far as the raw material for any good is a corresponding primary commodity:

$$GDP = \sum_i \left(P_i S_i\right) + \sum_i \left(P_i^n F_n\right) + A_S \quad (1)$$

Where GDP = Gross Domestic Product, P_i = average weighted annual market price of the commodity, S_i = annual volume of exported commodity, P_i^n = price of the i^{th} commodity processed up to the finished product n, F_n = volume of sold n^{th} product, A_S = added value of all services (governmental, insurance, bank, education, etc.). It may be seen that foreign trade balance indirectly participates in the equation.

We have investigated costs of primary commodities produced in China in 1980-2013. The following commodities as having the hugest economic impact were analyzed:

1. Crude oil
2. Natural gas
3. Coal
4. Iron ore
5. Copper

6. Lead
7. Zinc
8. Gold
9. Silver

The commodity cost was calculated by multiplying average annual world commodity price according to the IMF prices (http://www.imf.org/external/np/res/commod/index.aspx) and some other sources by the volume of produced commodity identified in already cited statistical yearbooks. Table 2 provides our calculation results.

Fig. 9 displays interdependence between China's GDP as released by the World Bank Group (Feklyunina and White, 2013) and the bulk cost of produced commodities, according to Table 2. Extremely high value of correlation coefficient (0.9859) allowed us to perform modeling of China's GDP based on commodity production. Theoretically (Freedman, 2009), interdependence of two variables in two-dimensional space $(\bar{x}_i, \bar{y}_i)$ may be investigated by a regression equation:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + ... + \beta_p x_{ip} + \varepsilon_i, \quad (2)$$

Where: ε_i = residual of equation (3):

$$\vec{x} = \begin{pmatrix} x_{11} & ... & x_{1p} \\ ... & ... & ... \\ x_{n1} & ... & x_{np} \end{pmatrix}, \quad (3)$$

and coefficient β is determined by last squares method ((Freedman, 2009) meaning that deviation of squares of points $(\bar{x}_i, \bar{y}_i)$ should be minimum. It is reached by an extremum:

$$F(\vec{\beta}_n) = \sum_{n=1}^{p} [\bar{y}_n - B(\bar{x}_n, \vec{\beta}_n]^2, \quad (4)$$

In none-linear cases it is possible to compute the values of coefficients, standard errors and residue ε_i. To do so, we need to know mean values of $\bar{x}$ and $\bar{y}$, the standard deviation of *x*, the standard deviation of *y*, and the correlation between them. Previous modeling have proven that quadratic equations provide the most appropriate results (Tvalchrelidze, 2011; Tvalchrelidze and Silagadze, 2013). Such computation was realized in the SPSS system using ANOVA technology.

Results are given on Fig. 10. The quadratic equation displays an extremely close compatibility with real GDP values. Fig. 11 compares the real GDP of China borrowed from the World Bank Group databank with the model GDP calculated by the quadratic equation based on the cost of produced selected commodities.

Particularly good interoperability of two curves and very high correlation coefficient demonstrate that accuracy of calculation is ± 5%.

Table 2. Production and Cost of Selected Commodities in China in 1980-2013

Year	Crude oil			Natural gas		
	Production, mln t	Price, US$/t	Cost, US$ billion	Production, bln m^3	Price, US$/1000 m^3	Cost, US$ billion
1980	105.95	274.29	29.06	14.27	63.57	0.91
1981	101.22	262.05	26.52	12.74	70.63	0.90
1982	102.12	233.31	23.83	11.93	88.29	1.05
1983	106.07	213.16	22.61	12.21	84.76	1.03
1984	114.61	210.74	24.15	12.43	84.76	1.05
1985	124.90	197.32	24.65	12.93	88.29	1.14
1986	130.69	105.85	13.83	13.76	63.57	0.87
1987	134.14	130.11	17.45	13.89	67.10	0.93
1988	137.05	109.00	14.94	14.26	88.00	1.25

1989	137.64	134.36	18.49	15.049	89.00	1.34
1990	138.31	169.98	23.51	15.298	104.23	1.59
1991	140.99	148.07	20.88	15.49	117.64	1.82
1992	142.04	141.10	20.04	15.79	102.01	1.61
1993	144.03	122.78	17.68	16.765	93.68	1.57
1994	146.08	114.79	16.77	17.559	82.88	1.46
1995	149.02	122.78	18.30	17.947	87.69	1.57
1996	158.52	149.97	23.77	20.114	89.91	1.81
1997	160.13	136.63	21.88	22.703	98.05	2.23
1998	160.18	87.30	13.98	23.279	83.62	1.95
1999	160.22	121.38	19.45	25.198	66.60	1.68
2000	162.62	200.77	32.65	27.2	90.00	2.45
2001	164.83	168.59	27.79	30.329	110.00	3.34
2002	166.87	167.20	27.90	32.661	115.30	3.77
2003	169.59	202.97	34.42	35.015	144.90	5.07
2004	174.05	276.05	48.05	41.46	154.20	6.39
2005	181.40	366.79	66.54	49.32	209.90	10.35
2006	184.80	427.34	78.97	58.553	280.20	16.41
2007	186.30	470.59	87.67	69.2	286.70	19.84
2008	190.40	670.55	127.67	80.3	412.70	33.14
2009	189.50	392.01	74.29	85.3	304.20	25.95
2010	203.00	521.97	105.96	94.8	286.00	27.11
2011	202.90	638.00	129.45	102.7	374.10	38.42
2012	207.50	633.75	131.50	107.2	393.80	42.22
2013	208.10	668.28	139.07	117.1	396.64	46.45

Table 2. Continued

Year	Coal			Iron ore		
	Production, mln t	Price, US$/t	Cost, US$ billion	Production, mln t	Price, US$/t	Cost, US$ billion
1980	125.50	39.94	5.01	85.00	24.00	2.04
1981	130.10	39.94	5.20	94.00	22.00	2.07
1982	134.95	39.94	5.39	107.30	24.00	2.58
1983	142.90	39.94	5.71	113.70	20.00	2.27
1984	152.53	39.94	6.09	121.90	18.00	2.19
1985	157.45	39.94	6.29	131.50	18.00	2.37
1986	169.18	39.94	6.76	149.50	18.00	2.69
1987	185.36	39.94	7.40	161.40	19.00	3.07
1988	196.98	39.94	7.87	167.70	20.00	3.35
1989	215.29	42.08	9.06	171.80	25.00	4.30
1990	223.34	43.48	9.71	179.30	27.00	4.84
1991	239.90	42.80	10.27	190.60	28.32	5.40
1992	253.80	38.53	9.78	197.60	28.32	5.60
1993	263.19	33.68	8.86	234.66	28.32	6.65
1994	270.86	37.18	10.07	240.20	28.32	6.80
1995	289.02	44.50	12.86	249.35	28.32	7.06
1996	310.96	41.25	12.83	249.55	28.48	7.11
1997	319.39	38.92	12.43	268.00	30.06	8.06
1998	320.92	32.00	10.27	246.90	31.14	7.69
1999	314.41	28.79	9.05	237.00	25.52	6.05
2000	334.79	35.99	12.05	223.00	25.57	5.70
2001	341.88	39.03	13.34	220.00	23.87	5.25
2002	358.10	31.65	11.33	231.00	26.04	6.02
2003	375.35	43.60	16.37	261.00	32.30	8.43
2004	407.67	72.08	29.38	320.00	37.92	12.13
2005	428.43	60.54	25.94	420.00	44.50	18.69
2006	449.19	64.11	28.80	588.00	53.88	31.68
2007	478.19	88.79	42.46	824.00	59.64	49.14
2008	560.40	147.67	82.75	824.00	80.00	65.92
2009	594.60	70.66	42.01	880.20	75.00	66.02
2010	647.00	92.50	59.85	1,077.70	140.00	150.88
2011	703.20	121.52	85.45	1,326.90	150.00	199.04
2012	729.00	92.50	67.43	1,309.60	180.00	235.73
2013	736.00	98.00	72.13	1,451.00	160.00	232.16

Table 2, Continued

Year	Copper			Lead		
	Production, 1000 t	Price, US$/t	Cost, US$ billion	Production, 1000 t	Price, US$/t	Cost, US$ billion
1980	165.00	2,153.80	0.36	155.00	905.36	0.14
1981	170.00	1,615.40	0.27	158.00	725.87	0.11
1982	175.00	1,461.50	0.26	160.00	545.83	0.09
1983	175.00	1,600.00	0.28	160.00	425.31	0.07
1984	180.00	1,384.60	0.25	165.00	441.95	0.07
1985	190.00	1,423.10	0.27	175.00	390.68	0.07
1986	200.00	1,461.50	0.29	226.80	405.65	0.09
1987	350.00	1,615.40	0.57	267.30	596.35	0.16
1988	370.00	2,461.50	0.91	311.60	655.51	0.20
1989	370.00	2,846.20	1.05	341.40	672.64	0.23
1990	375.00	2,538.50	0.95	315.30	809.50	0.26
1991	380.00	2,336.90	0.89	319.70	557.80	0.18
1992	388.00	2,286.20	0.89	340.50	543.51	0.19
1993	392.30	1,913.60	0.75	415.20	407.34	0.17
1994	395.60	2,306.00	0.91	461.90	548.72	0.25
1995	441.90	2,934.40	1.30	514.20	629.29	0.32
1996	436.40	2,292.80	1.00	643.40	774.13	0.50
1997	495.50	2,275.20	1.13	711.90	623.06	0.44
1998	486.80	1,653.50	0.80	580.50	526.92	0.31
1999	520.10	1,571.90	0.82	548.90	501.76	0.28
2000	592.60	1,812.20	1.07	659.50	454.17	0.30
2001	587.00	1,578.50	0.93	676.00	476.36	0.32
2002	568.00	1,558.70	0.89	640.70	452.25	0.29
2003	614.40	1,779.10	1.09	954.60	514.21	0.49
2004	754.20	2,866.00	2.16	997.20	881.94	0.88
2005	776.00	3,777.30	2.93	1,142.00	974.37	1.11
2006	889.00	6,721.90	5.98	1,331.00	1,288.42	1.71
2007	946.40	7,253.20	6.86	1,402.00	2,579.12	3.62
2008	1,092.70	6,955.88	7.60	1,402.70	2,093.32	2.94
2009	1,062.00	5,149.74	5.47	1,604.10	1,719.44	2.76
2010	1,179.50	7,534.78	8.89	1,981.30	2,148.19	4.26
2011	1,274.70	8,828.19	11.25	2,405.70	2,400.70	5.78
2012	1,642.30	7,962.35	13.08	2,613.20	2,063.56	5.39
2013	1,600.00	7,560.00	12.10	3,000.00	2,139.75	6.42

Table 2, Continued

Year	Zinc			Gold		
	Production, 1000 t	Price, US$/t	Cost, US$ billion	Production, t	Price, US$/ounce	Cost, US$ billion
1980	140.00	760.96	0.11	52.00	760.96	0.11
1981	150.00	845.84	0.13	54.00	845.84	0.13
1982	160.00	744.79	0.12	56.00	744.79	0.12
1983	160.00	764.45	0.12	57.00	764.45	0.12
1984	190.00	921.90	0.18	59.00	921.90	0.18
1985	200.00	783.37	0.16	65.00	783.37	0.16
1986	385.70	753.98	0.29	68.00	753.98	0.29
1987	458.20	798.07	0.37	72.00	798.07	0.37
1988	527.30	1,240.28	0.65	78.00	1,240.28	0.65
1989	620.40	1,656.22	1.03	90.00	1,656.22	1.03
1990	618.90	1,517.92	0.94	100.00	1,517.92	0.94
1991	710.00	1,121.36	0.80	120.00	1,121.36	0.80
1992	820.50	1,241.83	1.02	140.00	1,241.83	1.02
1993	931.40	963.96	0.90	150.00	963.96	0.90
1994	990.30	998.22	0.99	160.00	998.22	0.99
1995	1,000.60	1,031.09	1.03	127.60	1,031.09	1.03
1996	1,161.00	1,024.98	1.19	145.30	1,024.98	1.19
1997	1,209.90	1,314.90	1.59	181.40	1,314.90	1.59
1998	1,273.20	1,024.28	1.30	172.80	1,024.28	1.30
1999	1,476.00	1,075.80	1.59	165.60	1,075.80	1.59
2000	1,780.30	1,127.70	2.01	176.90	1,127.70	2.01
2001	1,693.20	886.82	1.50	181.90	886.82	1.50
2002	1,624.10	778.90	1.27	202.00	778.90	1.27
2003	2,029.30	827.97	1.68	210.10	827.97	1.68
2004	2,391.20	1,048.04	2.51	212.40	1,048.04	2.51
2005	2,547.80	1,380.55	3.52	229.80	1,380.55	3.52
2006	2,844.20	3,266.18	9.29	247.20	3,266.18	9.29
2007	3,047.70	3,249.73	9.90	280.50	3,249.73	9.90
2008	3,186.00	1,884.83	6.01	292.00	1,884.83	6.01
2009	3,332.40	1,658.39	5.53	324.00	1,658.39	5.53
2010	3,842.20	2,160.36	8.30	350.90	2,160.36	8.30
2011	4,050.00	2,195.53	8.89	371.00	2,195.53	8.89
2012	4,859.10	1,950.02	9.48	413.10	1,950.02	9.48
2013	5,100.00	1,910.17	9.74	438.20	1,910.17	9.74

Table 2, Continued

Year	Silver			Bulk cost, US$ billion
	Production, t	Price, US$/ounce	Cost, US$ billion	
1980	50.00	20.98	0.03	38.68
1981	60.00	10.49	0.02	36.02
1982	70.00	7.92	0.02	34.00
1983	80.00	11.43	0.03	32.90
1984	90.00	8.15	0.02	34.70
1985	95.00	6.13	0.02	35.62
1986	100.00	5.50	0.02	25.65
1987	125.00	7.02	0.03	31.01
1988	145.00	6.53	0.03	30.31
1989	165.00	5.50	0.03	36.63
1990	150.00	4.83	0.02	43.06
1991	180.00	4.06	0.02	41.65
1992	590.00	3.94	0.07	40.75
1993	760.00	4.31	0.11	38.43
1994	810.00	5.29	0.14	39.37
1995	910.00	5.20	0.15	44.18
1996	1,140.00	5.20	0.19	50.20
1997	1,300.00	4.99	0.21	49.89
1998	1,299.00	5.54	0.23	38.17
1999	1,379.00	5.22	0.23	40.62
2000	1,569.00	4.95	0.25	58.07
2001	2,013.00	4.37	0.28	54.34
2002	2,200.00	4.60	0.33	53.79
2003	2,400.00	4.58	0.35	70.36
2004	2,450.00	6.66	0.52	104.82
2005	2,500.00	7.31	0.59	132.95
2006	2,600.00	11.55	0.97	178.60
2007	2,700.00	13.38	1.16	226.93
2008	2,800.00	14.99	1.35	335.56
2009	2,900.00	14.67	1.37	233.51
2010	3,085.00	20.19	2.00	381.06
2011	3,191.00	35.12	3.60	500.63
2012	3,516.00	31.15	3.52	530.51
2013	3,669.00	23.79	2.81	540.75

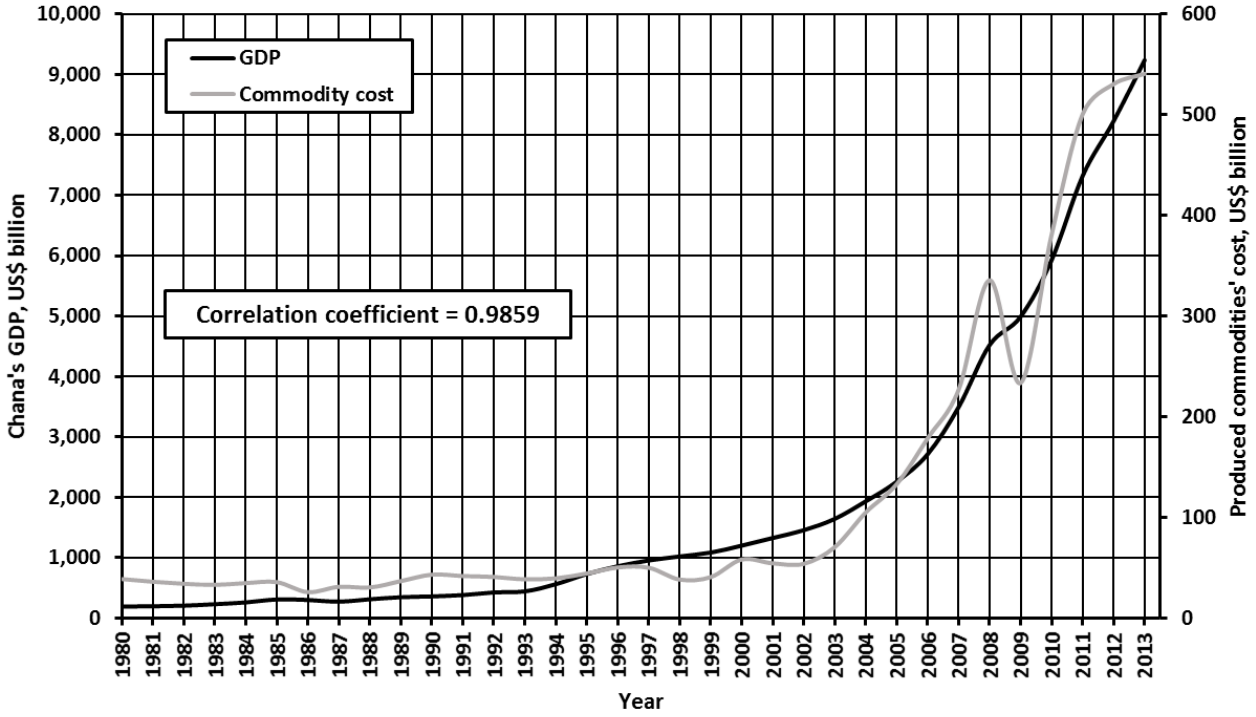

Figure 9. Interdependence between China's GDP and Bulk Cost of Selected Produced Commodities

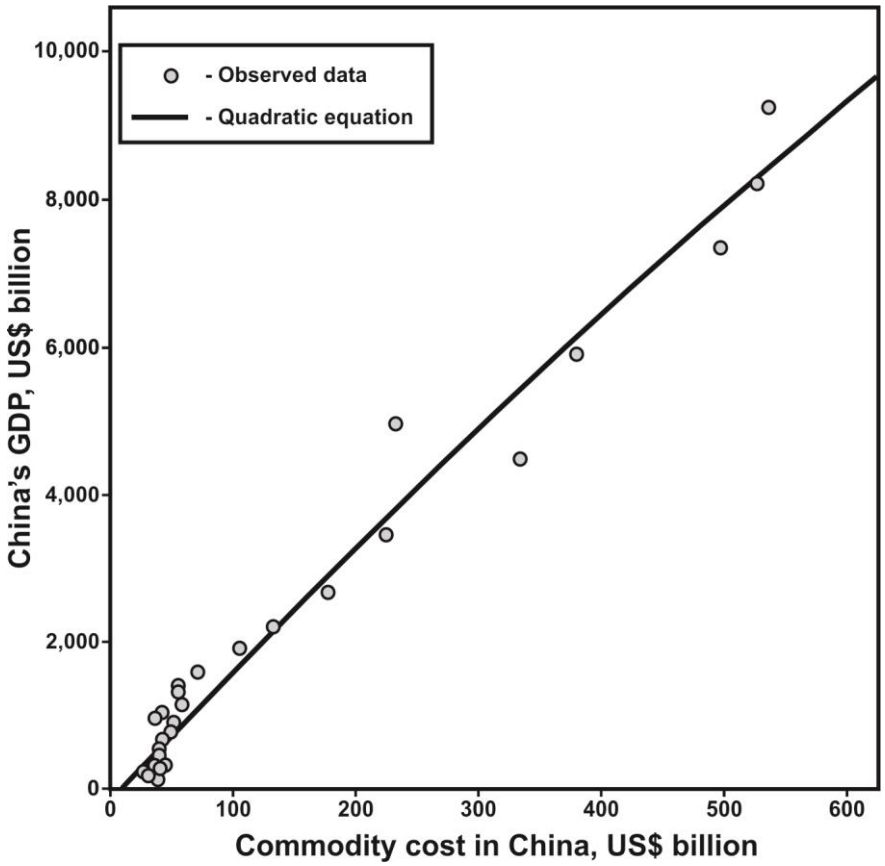

Figure 10. China's GDP Model

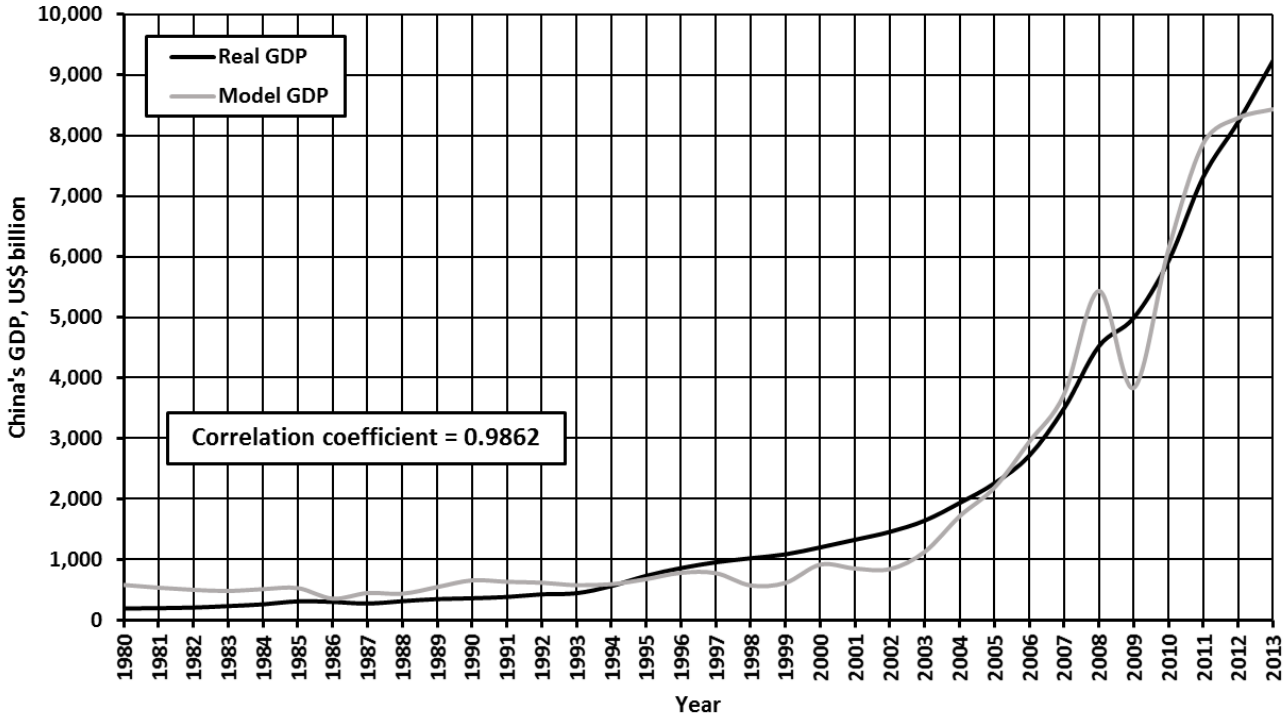

Figure 11. Real and Model GDP of China in 1980-2013

The only exception is the year 2009, the year of the world economic crisis, and we are sure that its impact on China's GDP was much more severe than announced by the World Bank. The model hereto allows to formulate several conclusions:

1. In spite of structural and legislative changes the success of China's economic reforms was determined by extensive industrialization based on downstream processing of national and imported primary commodities;
2. Privatization in this sector and support of private businesses was expressed by creation of corresponding financial instruments and, first of all, by foundation of commodity exchanges of the global importance;
3. The phase of extensive economic development is not finished in China yet: graphs on Figures 6-8 do not display any tendency of asymptotic approach to a limit;
4. However, such extensive development cannot be sustainable for more than 8-10 years, and the greatest challenge for China will be a step-by-step construction of a post-industrial economy and society in coming years.

V. LESSONS TO BE STUDIED

25 years of transition in newly independent post-USSR states did not bring either of them to a desired target – mid-European level of economy. The experience of these years clearly demonstrated that even successful reforms of governance and the society based on liberalization and total privatization without extensive development of industrial branches are unable to ensure rapid economic development.

On the other hand, countries, which decided to launch extensive exploitation of natural resources like hydrocarbons and metals and exports of primary commodities, happened to be extremely vulnerable and dependent on world commodity prices. Moreover, artificial decrease of the latter, and, first of all, of crude oil was used at least three times during the recent 35 years for intensification of international pressure against Russia.

Against this sad background China represents a unique example of successful economic reforms, which lead to rapid economic development and accelerated increase of leaving standards. Despite of all governmental and structural changes like adoption of a neoliberal economic approach and development of economic regionalism, the basic idea of Chinese reforms consists in extensive development of downstream processing of primary commodities. Such an industrialization was simultaneously followed by introduction of financial instruments for commodity markets and by foundation of commodity exchanges of global importance. Just

synergy of these two measures determined at our opinion fundamental success of the Chinese reforms.

However, the ultimate target of such reforming should be step-by-step construction of a post-industrial economy.

Example of China may show a guideline for the newly independent states – in addition to basic reforms of society, social insurance, governance, banking system, etc., industrial branches of primary commodity downstream processing should be developed and governmentally supported. Of course, such branches should be based on the national resource base. Only synergetic amalgamation of, on one hand, a civil society and, on the other hand, sustainable exploitation of national natural resources and downstream processing of national primary commodities may ensure irreversible merging of newly independent states to the civilized world.

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