When Vietnam Escapes Underdevelopment?

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1.Introduction

In its socio-economic development strategy, the Vietnam Communist Party affirms: "...to bring our country out of underdevelopment, significantly improve the people's material and spiritual life; establish necessary foundations for Vietnam to become an industrial country...". The question is now posed: Where is Vietnam on the list? When is it "graduated" out of the ranks of underdeveloped nations? When does it enter the stage of development? This article uses the models of Chenery and the World Bank (WB) to answer these questions.

2.Theory models

- Chenery Model (1979): Based on research projects on many nations' development from 1950 to 1973, Chenery concludes that the GDP share of agriculture is on the downward trend, while that of industry increases in relation to the growth of per capita GNP.

Chenery rates development into three stages:

Underdevelopment stage: When per capita GNP is below US$600 and the GDP share of agriculture, Ya(%) is higher than that of industry, Yi(%).

Transiting stage (developing): When per capita GNP ranges from US$600 to US$3,000 and the GDP share of agriculture, Ya (%) is lower than that of industry, Yi (%).

Development stage: When per capita GNP is above US$600 and the GDP share of industry, Yi(%) is higher than that of agriculture, Yi (%).

The Chenery's rating of per capita GNP is now inappropriate in the world; however, his standards remain applicable: When Yi (%) is equal to Ya(%), the intersection of two lines of Ya(%) and Yi(%) shows a nation comes to a new stage, basically changing its economic structure from traditional agriculture to modern industry.

Table 2: The list of nations having an upper medium income (US$3,596 < per capita GNP < US$11,115 in 2005 (1998 base price).

Nation	Per capita GNP (US$)	Nations	Per capita GNP (US$)
Saudi Arabia	11,764	Libya	5,527
Korea	10,975	Malaysia	4,963
Estonia	9,107	Turkey	4,704
Croatia	8,064	Argentina	4,466
Poland	7,112	Russia	4,466
Latvia	6,757	Uruguay	4,359
Chile	5,865	Romania	3,834

Source: WB, 2007.

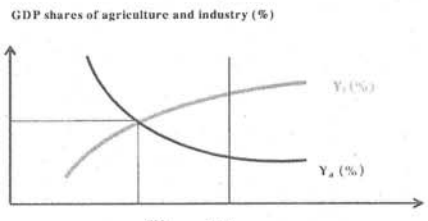

Table 1: The WB's measurement of development level (2007)

Low income (Underdeveloped)	Medium income (Developing)	High income (Developed)	
	Lower medium	Upper medium	
< 906	906-3,595	3,596 – 11,115	> 11,115

Source: WB, 2007.

- World Bank Model (2007):

According to World Bank, the development level of nations is classified into three groups: low income, medium income and high income based on annual per capita GNP (1998 price in US$) as indicated below:

- Combination of Chenery and the WB's models

Based on the two models of Chenery and the WB, a nation's development level may be determined by the following criteria:

Underdeveloped: Ya (%)> Yi (%) and GNP/person/year < US$905

Developing: Ya (%)<Yi (%) and US$906 < GNP/person/year< US$11,115. In the stage, the industrial nation has an upper medium income (GNP/person/year = US$3,596).

Developed: Ya(%) < Yi(%) and GNP/person/year> US$11,115.

3. Vietnam's current development level

a. Current development level

Figure 1 indicates the GDP share of agriculture is falling while that of industry increasing in accordance with improving level of development (per capital GNP). In fact, Vietnam has passed the breaking point, Ya(%) < Yi(%). In 2005, its GDP share of industry reached 40.17%, while that of agriculture was 19.56%. According to WB, in 2005, its per capita GNP posted US$623 (1998 base price), ranking 182nd among 224 nations in the world.

As a result, Vietnam remained an underde-

Table 3: Vietnam's per capita GNP, the GDP shares of agriculture and industry

Year	Yp (per capita GNP/year) [1] VNDmil.,1994 base price	GDP share of agriculture Ya(%)	GDP share of industry Yi(%)
1991	1.966886	39.20	23.10
1992	2.141654	38.63	24.25
1993	2.265534	37.11	25.38
1994	2.456988	35.44	26.59
1995	2.713827	26.24	29.94
1996	2.897351	25.06	31.34
1997	3.062435	24.17	32.64
1998	3.168101	23.66	33.43
1999	3.285090	23.76	34.36
2000	3.474516	23.28	35.41
2001	3.668015	22.43	36.57
2002	3.865131	21.82	37.39
2003	4.090053	21.06	38.48
2004	4.335457	20.39	39.35
2005	4.634701	19.56	40.17

Source: General Statistics Office, 2007. [1] The author's calculation

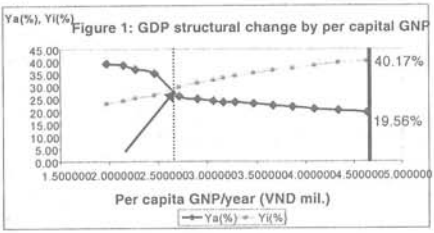

Figure 1: GDP structural change by per capital GNP

veloped country Vietnam although it had made basic changes from a traditional economy to industrial one.

b.Forecast of development in future

Note: $Y = Yp \times P$ (1)

Where Yp: per capita GNP; Y: GNP; and P: Population

Calculate the logarithm of the two sides of equation (1):

$LnY = LnYp + LnP$(2)

and then derivatives of the two sides of equation (1) by time (t)

$$\frac{dY}{dt}\frac{1}{Y} = \frac{dYp}{dt}\frac{1}{Yp} + \frac{dP}{dt}\frac{1}{P}$$

If considering the change at t=0 and t, Equation (3) will be:

$$\frac{\Delta Y}{Y} = \frac{\Delta Yp}{Yp} + \frac{\Delta P}{P}$$

Let gy be growth of GNP; gYp: growth of per capita GNPi; and Gp: growth of population. Equation (4) is rewritten as followed:

$gY = gYp + gP$ (5)

$gYp = gY - gP$ (6)

According to forecasts of the Vietnam's socio-economic development strategy (Vietnam Communist Party, 2001), in the 2006 – 2010 period, the country's population growth is 1.14%. Based on the trend in Vietnam economic growth in the 1990-2006, the author estimates its GNP growth reaches 8%. Apply these figures to Equation (6):

$gYp = 0.08 - 0.0114 = 0.0686$

Where Gyp: annual growth rate of per capita GNP

$$gY_p = \sqrt[n]{\frac{Yp_t}{Yp_0}} - 1 = 0.0686$$

According to the criteria of passing underdevelopment, per capita GNP must reach US$906. Therefore, Ypt = US$906; Yp0 = US$623 (in 2005)

$$\sqrt[n]{\frac{906}{623}} = 1.0686 \longrightarrow$$

$$\frac{906}{623} = 1.0686^{n-1}$$

$$\ln\left(\frac{906}{623}\right) = (n-1)\ln(1.0686)$$

→ n = 7 (the number of years in the period).

As such, Vietnam will pass its underdevelopment in 2012

If depending on forecasts of growth in population and GNP, to reach per capita GNP of US$3.596 (industrial country), n (the number of years) must be:

$$\ln\left(\frac{3596}{623}\right) = (n-1)\ln(1.0686)$$

→ n = 27 .

As such, Vietnam will become an industrial country in 2032.

Similarly, to reach per capital GNP of US$11,116 (Developed country), n must be:

$$\ln\left(\frac{11,116}{623}\right) = (n-1)\ln(1.0686)$$

→ n = 44

So Vietnam will be a developed country in 2049.

4.Conclusion

The above-mentioned forecast method can be used to map out different scripts so that Vietnam becomes an industrial country by 2020 if the figures of population growth and GNP changes accordingly. ■

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