IDENTIFYNG VIETNAM'S INCOME INEQUALITY FORMS AT THE PROVINCIAL LEVEL DURING THE 2002 – 2010 PERIOD

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ABSTRACT

By identifying the different shapes that illustrate an increase or decrease in inequality at the provincial level, this paper allows to distinguish a kind of "temporarily and relatively acceptable" inequalities from an "on the alert" one, and thus provides a more detailed structure for a more complete understanding of the phenomenon. The results at the provincial level in Vietnam indicate that income gap between the richest 20% and the poorest 20% has widened for nine years, from 2002 to 2010, in most provinces (60 to 63). Inequality has reduced in only three provinces. At a more detailed level, it is alarming to note that a large majority of the above unequal provinces (55 to 60) belonged to the "on the alert" shapes A and E. Only five provinces have the "temporarily and relatively acceptable" shapes B and D. The shapes A, E, reflect the fact that the poor are becoming poorer than the average living standard.

Keywords: Income Inequality, Inequality Form, Vietnam.

1. Introduction

After nearly thirty years of "renovation", Vietnamese people's average income has improved considerably. At the same time, income inequality between groups of households has also rapidly increased. Currently, most studies concerning Vietnam's income distribution use overall Gini coefficient. The latter, however, helps measure only its level. In a more detailed calculation, the Gini coefficient can be decomposed into within and between groups to analyze the structure of income inequality.

Nevertheless, like any inequality coefficient, neither the Gini nor the decomposed Gini ratio can precisely point out characteristics or causes of inequality. In order to fill the gap, this paper first aims to establish all the possible forms of inequality, based on trends of the household lowest and highest quintiles compared to the average income. Secondly, we identify and classify Vietnamese provinces in the form to which each of them[1] belongs. Finally it will be necessary to assess the severity of their inequality forms. The main findings of this

[1]*The number of provinces in Vietnam has changed twice during the 2002-2010 period. It increased from 61 to 64 in 2003 due to the dichotomization of three provinces. In 2008, Ha Tay was merged into Hanoi and the number decreased to 63. Therefore, in the year 2002, there are 6 provinces which do not have data (they are Lai Chau and Dien Bien; Dak Lak and Dak Nong; Can Tho and Hau Giang). The base year of these provinces is 2004.*

study will be represented with several maps which allow a direct visualization of the phenomenon.

2. Theoretical Framework

According to Wright (1998), inequality is defined as something to describe some valued attribute which can be distributed across the relevant units of a society in different quantities, where inequality implies that different units possess different amounts of this attribute. The units can be individuals, families, social groups, communities, nations; the attributes include such things as income, wealth, status, knowledge, power. This concept indicates that inequality can take many dimensions. Income inequality is the most common. To measure inequality, Clunnies-Ross et al. (1998) show that, people use different indicators. Firstly, people normally use Gini coefficient, which is a measure of equality of distribution of one variable across another, mostly used to measure the inequality of distribution of income across a population. It has values between zero and one, with higher values indicating greater inequality. It is based on a *Lorenz curve* and is the ratio between (i) the area between the Lorenz curve and the diagonal of the diagram and (ii) the whole area below the diagonal. The *Lorenz curve* (named after Konrad Lorenz) is a function drawn with proportions of people on the horizontal axis and proportions of a variable such as income on the vertical, which is used to show the equality of distribution of the latter variable over the population, with complete equality represented by a *Lorenz curve* that is a diagonal straight line. The second common way of measuring equality is to compare the share of total income earned by say the top fifth ('quintile') or tenth ('decile') of income earners with the share going to the bottom fifth or tenth, by showing the ratio between the former and the latter.

In empirical studies, inequality measures the gap of income between individuals or households groups, it is a commonly simplistic vision to consider that change in income inequality is due to an increase in income difference between them. This is obviously true, but not sufficiently precise. In fact, change in income inequality can take many forms, and each of them reflects a specific situation or phenomenon. It is useful to establish all these possible forms as below. Given that households in a country are classified, based on their income level, from Q1 (the 20% poorest group) and Q5 (the 20% richest group), that the average income of a province is taken as reference (normalized to 100%), and that we consider mainly the richest and the poorest groups, it now becomes clear that inequality level can increase due to one of the following reasons:

- Income of the 20% richest group increased while income of the 20% poorest group decreased (shape A);

- Income of the 20% richest group increased while income of the 20% poorest group stagnated (shape B);

- Income of the 20% richest group stagnated while income of the 20% poorest group decreased (shape C);

- Income of both the 20% richest and the 20% poorest group increased but income of the former increased faster than those of the latter (shape D);

Income of both the 20% richest and the 20% poorest group decreased but income of the latter decreased faster than those of the former (shape E).
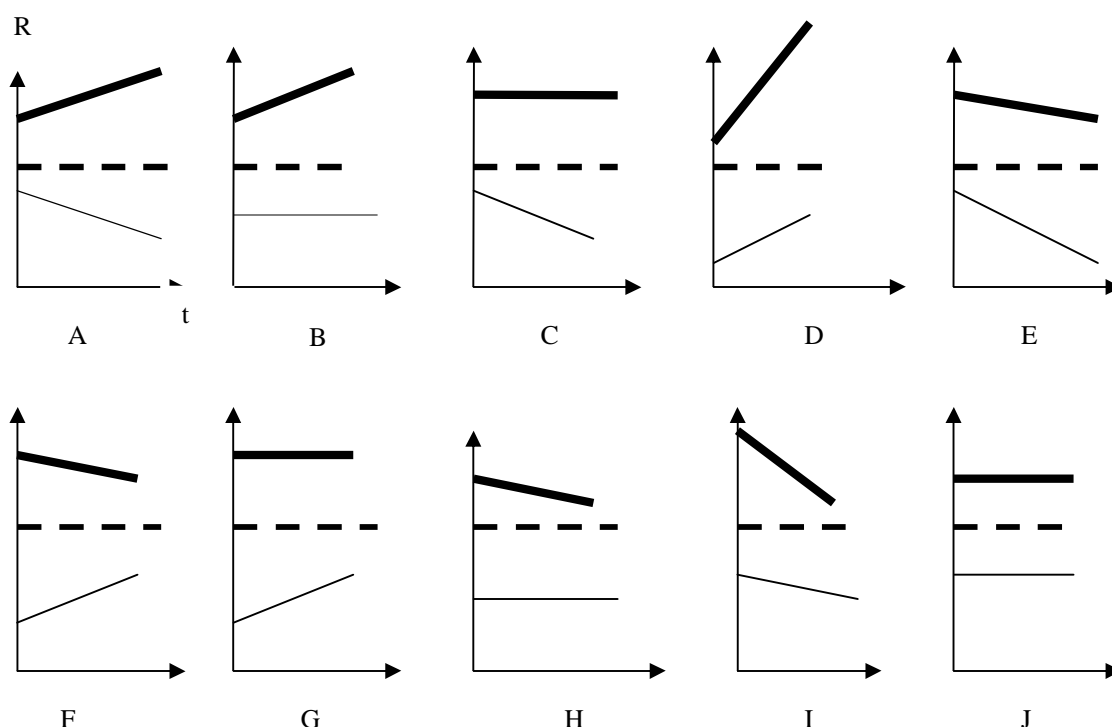
With:

━━━━━ Ratio of income of the 20% richest group (G5) to those of the average income.

───── Ratio of income of the poorest group (G1) to those of the average income (%).

─ ─ ─ Average income of the province (normalized to 100%)

Similarly, the inequality level can be unchanged or reduced since, compared to the average income:

- Income of the 20% richest group decreased while income of the 20% poorest group increased (shape F);

- Income of the 20% richest group stagnated while income of the 20% poorest group increased (shape G);

- Income of the 20% richest group decreased while income of the 20% poorest group stagnated (shape H);

- Income of both the 20% richest and the 20% poorest group decreased but income of the former decreased faster than that of the latter (shape I);

- Income of both the 20% richest and the 20% poorest group stagnated (shape J).

These simple illustrations help observe clearly the insight of the changes in income distribution in every geographical area. Consequently, we can distinguish two groups of change: the one with the shape **B or D can be considered as "temporarily and relatively acceptable inequality"**, and the other with the shape **A, C, E must be "on the alert"** for the reason that the cause of the increase in inequality is due to a relative decrease in income of the poorest.

In Vietnam, no empirical study has been on the forms of inequality at the provincial level so far. For example, World Bank (2012) examined inequality in Vietnam by looking at Gini and comparing

incomes of the richest groups with the poorest groups. Fritzen (2002) compared Vietnam's Gini with those of countries in the Asian region. It showed that Gini in Vietnam had increased from 0.33 in 1993 to 0.407 in 2000. Minot et al. (2003) focused on Gini at the local level. Haughton and Phong Nguyen (2010) examined inequality between the rural and the urban. Therefore, this paper is the first to explore the issue of inequality forms in Vietnam.

3. Data and Findings

3.1. Data

The data source is taken from *"Results of the Vietnam Household Living Standards Survey 2010"*[2] (VHLSS), General Statistical Office (GSO), Statistical publishing House. Data of income are grouped by quintile, from G1 (the 20% poorest households) to G5 (the 20% richest households). The period of data is 9 years, from 2002 to 2010.

3.2. Main findings

Results of our calculation are represented in table 1. First, income gap between the richest 20% and the poorest 20% has widened for nine years, from 2002 to 2010, in most provinces (60 to 63)[3]. Inequality has reduced in only three provinces, i.e. Hoa Binh, Dac Lac, and Dong Nai. Secondly, at a more detailed level of observation, it is alarming to note that a large majority of the above unequal provinces (55 to 60) belonged to the *"on the alert"* shapes A and E. Only five provinces have the *"temporarily and relatively acceptable"* shapes B and D. Finally, geographical concentration of income inequality does not appear very clear. In fact, the phenomenon concerns all of Vietnam's 8 regions[4], and the shapes A and E are widespread across the country without being concentrated in a particular area.

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[2] *The document is downloadable at http://www.gso.vn/Modules/Doc_Download.aspx?DocID=15084.*
[3] *It can be useful to note that results depend on the periodization choice. In an unpublished calculation, we broke the 2002-2010 period down into 2002-2006 and 2006-2010 periods. The main findings are as followed: i. for the first period, the number of provinces where inequality is widened is 59, of which the number of shapes A, E is 55, B and D = 4; ii. For the second period, the number of provinces where inequality is widened passed to 62, of which A and E = 48, B and D = 14.*
[4] *Administratively and geographically they are: Northwest, Northeast, Red River Delta, North Central Coast, South Central Coast, Central Highlands, Southeast, Mekong River Delta.*

Table 1. Inequality Forms at the Provincial Level during the Period 2002-2010

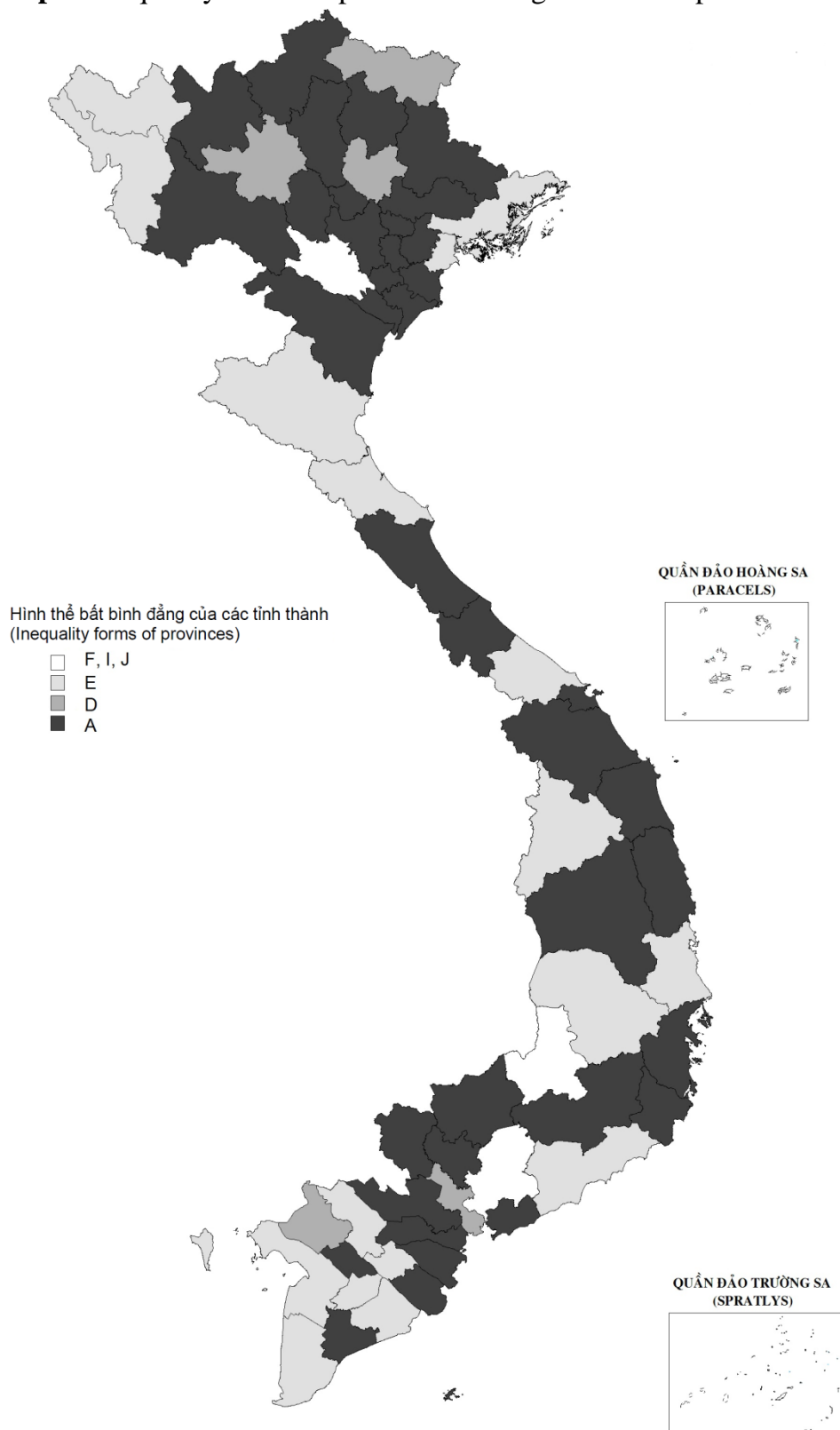| No.	Province	Inequality form	Decrease of Income of Q1 over Mean (%)	No.	Province	Inequality form	Decrease of Income of Q1 over Mean (%)
1	**Ha Noi+Ha Tay**	**A**	**18.3**	33	Quang Nam	**A**	**16.6**
2	Vinh Phuc	**A**	**19.0**	34	Quang Ngai	**A**	**8.7**
3	Bac Ninh	**A**	**39.8**	35	Binh Dinh	**A**	**12.1**
4	Hai Duong	**E**	**10.5**	36	Phu Yen	**E**	**6.5**
5	Hai Phong	**A**	**3.2**	37	Khanh Hoa	**A**	**11.7**
6	Hung Yen	**E**	**14.2**	38	Kon Tum	**A**	**17.2**
7	Thai Binh	**A**	**23.2**	39	Gia lai	**E**	**19.2**
8	Ha Nam	**A**	**11.8**	40	Dak Lak	**E**	**7.8**
9	Nam Dinh	**A**	**13.2**	41	Dak Nong	**A**	**4.9**
10	Ninh Binh	**A**	**26.5**	42	Lam Dong	**E**	**7.1**
11	Ha Giang	**A**	**5.0**	43	Ninh Thuan	**I**	**1.4**
12	Cao Bang	**A**	**18.1**	44	Binh Thuan	**A**	**8.2**
13	Bac Can	**D**	**-0.2**	45	Binh Phuoc	**A**	**3.6**
14	Tuyen Quang	**A**	**23.9**	46	Tay Ninh	**A**	**7.5**
15	Lao Cai	**A**	**10.5**	47	Binh Duong	**A**	**6.2**
16	Yen Bai	**A**	**8.3**	48	Dong Nai	**F**	**-5.9**
17	Thai Nguyen	**D**	**-7.6**	49	Ba Ria-Vung Tau	**A**	**14.3**
18	Lang Son	**D**	**-7.3**	50	TP. HCM	**D**	**-0.9**
19	Quang Ninh	**A**	**6.5**	51	Long An	**A**	**6.5**
20	Bac Giang	**A**	**27.4**	52	Tien Giang	**A**	**12.4**
21	Phu Tho	**A**	**20.2**	53	Ben Tre	**A**	**13.3**
22	Dien Bien	**E**	**15.8**	54	Tra Vinh	**A**	**6.3**
23	Lai Chau	**E**	**13.3**	55	Vinh Long	**E**	**3.6**
24	Son La	**A**	**19.3**	56	Dong Thap	**E**	**9.9**
25	Hoa Binh	**J**	**0**	57	An Giang	**D**	**-3.9**
26	Thanh Hoa	**A**	**11.2**	58	Kien Giang	**E**	**4.5**
27	Nghe An	**E**	**25.1**	59	Can Tho	**A**	**16.3**
28	Ha Tinh	**E**	**11.8**	60	Hau Giang	**E**	**34.2**
29	Quang Binh	**A**	**15.6**	61	Soc Trang	**E**	**1.9**
30	Quang Tri	**A**	**9.7**	62	Bac Lieu	**A**	**15.0**
31	Thua Thien - Hue	**E**	**15.2**	63	Ca Mau	**E**	**13.4**
32	Da Nang	**A**	**8.7**				

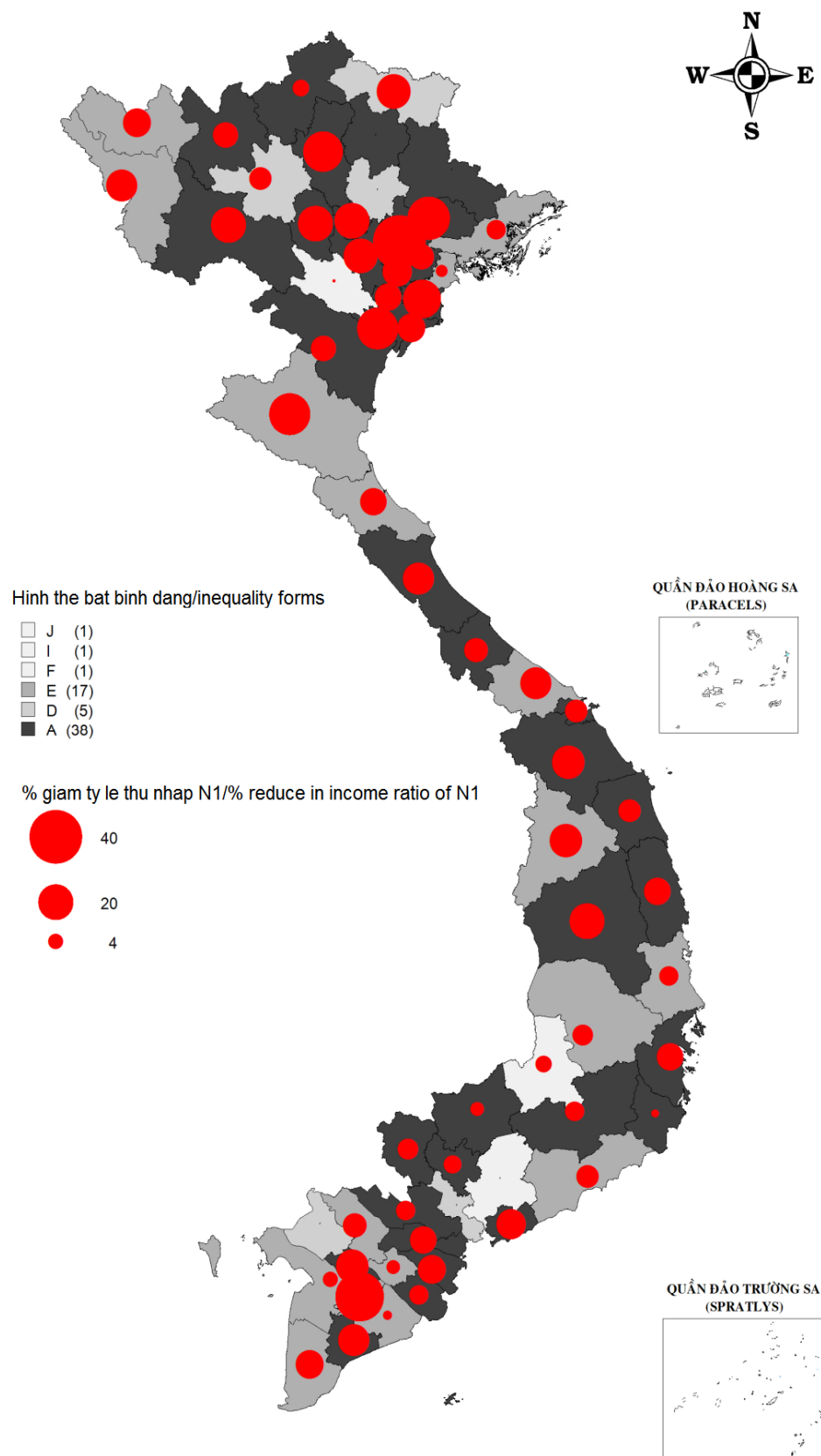*Source: Estimation from data of VHLSS by GSO.*

Results of our calculation are showed on the map 1. The degree of darkness illustrates the severity of inequality form. The shape F, G, H, I, and J which reflect a decrease in inequality have the lightest color. By contrast, the shapes that reflect an increase in inequality have darker colors. The degree of darkness rises from less to more severe inequality form, hierarchically corresponding to D, B, E, C, and A. The latter has the darkest color.

Taking up the base of the first map, the second adds bubbles that show the degree of severity of the shapes A and E. The size of the bubbles corresponds to a percentage of decrease in income of the poorest 20% compared to the provincial average income from 2002 to 2010. The bigger the bubble is, the higher the decrease is. Consequently, the map 2 simultaneously identifies inequality shapes and measures their severity. Provinces that combine dark colors and big bubbles are seriously "on the alert". As a result, *this combined phenomenon has a geographical characteristic.* Provinces in the North of Vietnam have the highest level of severity (the corresponding ratios of the Red River delta, the North East, and the North West are respectively 18%, 9.5%, and 12.1%), followed by the North Central Coast (14.8%), the South Central Coast (10.7%), and the Central Highlands 11.2%). The South East and provinces located in the Mekong River delta seem to be less concerned by this situation, with a ratio of 4.3% and 6.6% and respectively. In addition, it is noteworthy that several provinces of Program 135[1], a major national program that received a huge budget in order to reduce poverty and inequality, belong to this double phenomenon (recognized by their dark color and big bubbles on the map).

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[5] *The full name of the program 135 is "Socio-economic Development of the Most Vulnerable Communes in Ethnic Minority and Mountainous Areas in Vietnam." In phase 1 (1997-2006) the government spent more than 10,000 billion for the program. In this phase, there were 30 provinces participating in the program. They were Ha Giang, Cao Bang, Lai Chau, Son La, Bac Kan, Lao Cai, Kon Tum, Tuyen Quang, Lang Son, Yen Bai, Hoa Binh, Thanh Hoa, Nghe An, Quang Binh, Quang Tri, Thua Thien Hue, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Ninh Thuan, Gia Lai, Dak Lak, Lam Dong, Binh Phuoc, Bac Giang, Thai Nguyen, Phu Tho, Tra Vinh and Soc Trang. In phase 2 (2006-2010), there were another 15 provinces participating in the program. They were Dien Bien, Quang Ninh, Vinh Phuc, Ha Tinh, Khanh Hoa, Binh Thuan, Lam Dong, Tay Ninh, Bac Lieu, Vinh Long, An Giang, Kien Giang, Long An, Dong Thap and Ca Mau. In this period, in addition to national budget fund the program received 300 millions USD in the form of budget support from foreign development partners. Besides, in 2005-2012 period, there are 16 national programs which direct to poor areas. The budgets of these programs are more than 542,000 billion VND.*

Map 1. Inequality forms of provinces during 2002-2010 period

Hình thể bất bình đẳng của các tỉnh thành
(Inequality forms of provinces)

☐ F, I, J
▨ E
▨ D
■ A

QUẦN ĐẢO HOÀNG SA
(PARACELS)

QUẦN ĐẢO TRƯỜNG SA
(SPRATLYS)

Map 2. Inequality forms and their severity level

4. Conclusion

By identifying the different shapes that illustrate an increase or decrease in inequality, this paper allows to distinguish a kind of *"temporarily and relatively acceptable"* inequalities from an *"on the alert"* one, and thus provides a more detailed structure for a more complete understanding of the phenomenon. Applied at the provincial level, our calculations concluded that income gap between the richest 20% and the poorest 20% has widened for nine years, from 2002 to 2010, in most provinces (60 to 63). Inequality has reduced in only three provinces (Hoa Binh, Dac Lac, and Dong Nai). At a more detailed level, it is alarming to note that a large majority of the above unequal provinces (55 to 60) belonged to the *"on the alert"* shapes A and E. Only five provinces have the *"temporarily and relatively acceptable"* shapes B and D. The shapes A, E, reflect the fact that *the poor are becoming poorer than the average living standard.* This form of inequality is widespread across the country, but its degree of severity is marked by a geographical characteristic, with the decrease in income share of the poorest faster in the North (particularly in the Red River Delta), the Central and Central Highlands areas than that of the South.

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