

Examining the Welfare System Expenses in Vietnam: Analysis of Total Expenses and Population Trends in 2011-2018

Abstract:

The welfare system is a critical aspect of any society, aimed at providing assistance and support to individuals and families who are in need. In this paper, author examines the expenses of the welfare system in Vietnam from 2011 to 2018, analyzing the total expenses and population trends. The Ratio Indicator is analysed specifically with the use of averages, means, growths and coefficients and other means. The results show that the total welfare system expenses have been increasing from 2012 to 2013 with most significant increase between 2012 and 2013 when the total Welfare System expenses increased by 10,864,663 mil. VND. The average growth of average Welfare System Expenses on one citizen per year in the monitored period was 15,371 VND per year with an average growth coefficient of 1.055 per year. This research is aimed to understand better the challenges and opportunities associated with providing effective welfare programs in Vietnam.

Keywords: Average Expenses, Budget, Social Welfare Systems, Population, Vietnam.

1. Introduction

The welfare system is a critical aspect of any society, aimed at providing assistance and support to individuals and families who are in need. In Vietnam, the government has implemented various welfare programs to address the needs of vulnerable populations, including the poor, elderly, and disabled. In this paper, we examine the expenses of the welfare system in Vietnam from 2011 to 2018, analyzing the total expenses and population trends. By exploring the data, we aim to understand better the challenges and opportunities associated with providing effective welfare programs in Vietnam.

2. Literature Review

The most notable aspect of global population growth is that it has increased significantly in recent centuries after a long period of slow growth. In the 20th century alone, the world population increased threefold, which is a much greater rate than in all of human history before that time. This resulted in a surge from 1.5 to 6.1 billion people in just 100 years between 1900 and 2000, as OECD/FAO explained in their annual publication Agricultural Outlook 2019-2028 (2019).

This also brings new challenges to respective countries' social and welfare systems today.

As Friedl, Andreas & Görlich, Dennis & Horn, Sebastian & Krieger-Boden, Christiane & Lücke, and Matthias (2015) mention, when evaluating national welfare systems, one of the critical factors to consider is the degree to which they decommodify labor. This means the extent to which they reduce the dependence of individuals and families on market employment to secure their livelihoods. Also, another critical factor to consider is the level of emphasis placed on or relaxation of social stratification within the system. The same authors (Friedl, Andreas & Görlich, Dennis & Horn, Sebastian & Krieger-Boden, Christiane & Lücke, Matthias, 2015) describe the aim as ensuring that individuals are not limited by their social class and that everyone has equal access to essential resources and services. Moreover, it is also necessary to consider whether the welfare system primarily engages in social investment or income replacement during unemployment. While income replacement may provide temporary relief for individuals and families, social investment is more focused on creating long-term opportunities to improve social mobility and reduce economic inequality (Friedl, Andreas & Görlich, Dennis & Horn, Sebastian & Krieger-Boden, Christiane & Lücke, Matthias, 2015).

As is common consensus in nowadays World (Britannica, 2022), social welfare (social system) encompasses a diverse set of policies, services, and programs that aim to enhance the quality of life and financial stability of individuals and families within a community. These initiatives can include healthcare, education, housing, employment assistance, and financial aid. The fundamental objective of social welfare is to guarantee access to essential resources that enable a reasonable standard of living while minimizing social and economic disparities (Britannica, 2022).

3. Methodology

This research is statistical research that investigates two aspects of the Ratio Indicator, which are (A) the total Spending of the Vietnamese Social System (Welfare System) and (B) the Total population. These two aspects make up the average Spending of the Vietnamese Welfare System on one citizen (x). For details, see the following:

$$\text{Average spending on 1 citizen } (x) = \frac{\text{Total Spending of Social System in Vietnam (in mil.VND) } (A)}{\text{Total Population (in mil.Citizens) } (B)}$$

This indicator is a Ratio Indicator That has been created according to the following equation (Kropáč, 2012, pp. 70-119):

$$x = \frac{\text{Value of the Pointer A}}{\text{Value of the Pointer B}}$$

The result, therefore, shows the average Spending of the Vietnamese Social System Per One Citizen in the given year. Monitored and analysed is period of 8 years, from to till 2018. Newer data is not available at the moment.

Total Spending is represented by government expenses on social security (welfare system) in the given year and the population is represented by total citizens of Vietnam in the given year.

The data has been organized in a table that presents the Total Expenses on Social Security and Total Population in Vietnam from 2011 to 2018, as well as the average expenses on one citizen per year. The methodology used involves calculating the average expenses on one citizen per year by dividing the total expenses on social security by the total population in each year.

Results are also completed by a chart showing the coefficient of determination and polynomial equation related to the data, which presents the average expenses of social security per one citizen and year monitored.

Moreover, the methodology used in this analysis involves calculating several indicators that provide insight into the development of social security expenses in Vietnam. These indicators include the average expenses on social security per year, the growth or decline between the first and last year of the period, the average absolute increase per year, and the average growth rate per year. These indicators help in planning and strategic decision-making regarding social security financing.

The Ratio Indicator is analysed specifically with the use of Averages, Growths, First and Second Differences, Base index, and Arithmetic averages and such as. Necessary following equations are used to analyze the data (Kropáč, 2012, pp. 70-119):

- **The first difference:**

$$dy_t = y_t - y_{t-1} \quad t = 2, 3, \dots, n$$

In which:

dy_t is the first difference,

y is a series of values of a certain indicator,

t is the natural time sequence of the indicator (the time intervals are of the same length),

n is an expression of the number of time intervals.

- **Arithmetic average:**

$$1d(y) = \frac{y_n - y_1}{n - 1}$$

In which:

y_n is the maximum value of a values series of a particular indicator,

y_1 is the first value of a values series of a particular indicator,

n is the number of values of a given values series of a particular indicator.

- **Growth Coefficient:**

$$k_i(y) = \frac{y_t}{y_{t-1}}$$

In which:

$k_i(y)$ is the growth coefficient,

y_t the value of the indicator in the given period,

y_{t-1} is the value of the indicator in the previous period.

- **Average Growth Coefficient:**

$$k(y) = \sqrt[n-1]{\frac{y_n}{y_1}}$$

In which:

$k(y)$ is the average growth coefficient,

$n-1$ is the total number of indicator values from which the number one is subtracted,

y_n is the value of the y indicator at the end of the time series (the last value),

y_1 is the first value of the y indicator at the beginning of the time series (first value).

- **Ratio Indicator:**

$$x = \frac{\text{Value of the Pointer A}}{\text{Value of the Pointer B}}$$

In which:

x is a proportional indicator of quantities,

A is the first pointer,

B is the second pointer.

Moreover, much more of interest, median and standard deviation is calculated as well. The median is often used as a measure of central tendency when the data set

contains extreme values or outliers, as it is not affected by them in the same way as the mean. The standard deviation tells us how tightly or loosely the data points are clustered around the mean.

4. Results

Following tables and charts show the development of total expenses on welfare security in Vietnam in 2011-2018 as well as development of total population in the monitored period 2011-2018.

The result is the ratio of total expenses (budget) of welfare system (in 1,000,000 VND) and total population of Vietnam (in 1,000,000 citizens) which together makes average expenses of welfare system on one citizen per year (in VND).

Table 1: Average expenses of Welfare System on one Citizen in Vietnam in period 2011-2018 (VND / Year).

Year	Time Period (t)	Welfare System Expenses Total (in 1,000,000 VND)	Total Population (in 1,000,000 citizens)	Average Expenses of Welfare System on One Citizen (VND)	First Difference	Second Difference	Base Index	Growth Coefficient
2011	1	21,013,650	88.87	236,450			1.000	
2012	2	23,900,377	89.80	266,145	29,695.35		1.126	1.126
2013	3	31,878,313	90.75	351,266	85,120.66	55,425.31	1.486	1.320
2014	4	34,174,269	91.71	372,618	21,352.28	-63,768.39	1.576	1.061
2015	5	32,802,529	92.68	353,944	-18,674.05	-40,026.33	1.497	0.950
2016	6	32,531,445	93.64	347,408	-6,536.23	12,137.83	1.469	0.982
2017	7	32,016,760	94.60	338,441	-8,966.91	-2,430.68	1.431	0.974
2018	8	32,872,425	95.55	344,048	5,607.06	14,573.97	1.455	1.017

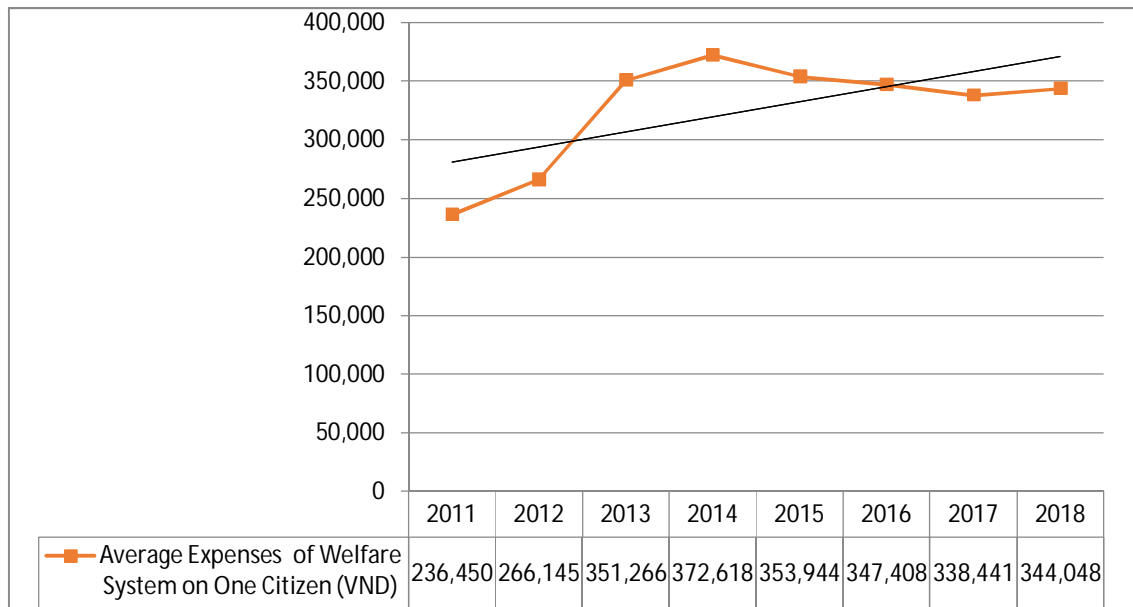
Source: author, extended, translated and re-written, based on Vrba (2022), MOLISA (2019), Worldometers (2021), and Cong Thong Tien Dien Tu Chinh Phu Nuoc Cong Hoa Xa Hoi Chu Nghia Viet Nam (2021).

Table 2: Average Summary Data for period of 2011 till 2018.

Average Expenses (x 1.000.000 VND)	Average Population (x 1.000.000 citizens)	Average Expenses per 1 Citizen (VND)	Average growth (VND/year)	Average Growth Coefficient	Median Average Exp per 1 Citizen (VND)	Standard deviation (VND)
30,148,721	92.20	326,290	15,371	1.0550	345,728	44,906

Source: calculated by author based on data table 1 data.

Figure 1 Average Expenses of Welfare System on One Citizen (VND per year)



Source: author, calculated by author based on table 1 data.

Welfare System Total Expenses can be characterized by two cumulative periods – period from 2011 till 2014 and period from 2014 till 2018. The total expenses on Welfare System have been increasing from 2011 to 2014. It is possible to see the significant increase between 2012 and 2013 when the total welfare system expenses increased by 10,864,663 mil. VND From 21,013,650 mil. VND to 34,174,269 in 2011 mil. VND in 2014. From 2014 till 2017 can be seen sharp decrease in total expenses of Vietnam Government on Welfare System, namely from 34,174,269 mil. VND in 2014 till 32,016,760 mil. VND in 2017 which makes up the decrease of 2,157,509 mil. VND. In 2018 there can be noted a slow growth to 32,872,425 mil. VND.

If total population is analysed, it can be seen that there is a steady growth in Vietnamese population from 88.87 mil. citizens in 2011 to 95.55 mil. citizens in 2018.

Ratio Indicator of Average Expenses of Welfare System on One citizen (per year) therefore has been increasing from 236,450 VND in 2011 till 344,048 VND in 2018. Since the ratio indicator consists of both aspects, it is clear that the year of 2013 is a significant year in increase of Average Expenses of Welfare System on One citizen (per year) as well.

From 2011 till 2013 the average expenses on one citizen had been increasing from 236,450 VND to 351,266 VND with the most significant difference in period of 2012-2013 when the expenses increased from 266,145 VND to 351,266 VND. The following year 2014 was marked by another increase till 372,618 VND per citizen per year.

From 2014 till 2017 we can note decrease in average expenses of Welfare System on One citizen per year from 372,618 VND till 338,441 VND. Year 2018 had been marked by average increase of 5,607 VND to 344,048 VND.

Average expenses of Vietnamese Welfare System in Total were 30,148,721 mil. VND every monitored year while average population was 92,2 mil. citizens.

Average expenses of Vietnamese Welfare System on One citizen were 326,290 VND per year within monitored period of 2011 till 2018. The Average growth was 15,371 VND per citizen per year in the monitored period with average growth coefficient 1.0550 (105,5%) per year.

Median of average expenses on one citizen is 345,728 VND within monitored period and the standard deviation is 44,906 VND.

5. Limitations of Research and Discussion

This Statistical analysis does not take in account that there may be citizens or people generally who do not get any support from social security system at all, and on the other hand there are citizens who may get access to extraordinary support from social security system, therefore the analysis has to be taken as average analysis.

Also, it is nearly impossible to take in account natural disasters and other variables and aspects influencing welfare system and its total expenses due to natural and geographical conditions of Vietnam.

The discussion is not viable at this point since the only research that concerns this data is presented by Vrba (2022). This research paper investigates and expand previous research on Vietnamese Welfare System as presented by Vrba (2022) by more in-depth statistical analysis.

6. Conclusion

The findings of this study include following:

- If base index is studied, it is clear that year 2018 represented 0.455 increase (1.455) in comparison to the base year 2011 (1.000).
- Welfare System Total Expenses as well as Average Expenses on one citizen (in VND per year) can be characterized by two cumulative periods – period from 2011 till 2014 and period from 2014 till 2018.
- The total expenses on Welfare System have been increasing from 2011 to 2014 with most significant increase between 2012 and 2013 when the total welfare system expenses increased by 10,864,663 mil. VND From 21,013,650 mil.
- From 2014 till 2017 can be seen decrease in total expenses of Vietnam on Welfare System, namely from 34,174,269 mil. VND in 2014 till 32,016,760 mil. VND in 2017 which makes up the decrease of 2,157,509 mil. VND.
- If total population is analysed, it can be seen that there is a steady growth in Vietnamese population from 88.87 mil. citizens in 2011 to 95.55 mil. citizens in 2018.

- Ratio Indicator of Average Expenses of Welfare System on One citizen (per year) therefore has been increasing from 236,450 VND in 2011 till 344,048 VND in 2018.
- From 2011 till 2013 the average expenses on one citizen per year had been increasing from 236,450 VND to 351,266 VND with the most significant difference in period of 2012-2013 when expenses increased from 266,145 VND to 351,266 VND.
- The following year 2014 was marked by another increase till 372,618 VND per citizen per year. From 2014 till 2017 we can note decrease in average expenses of Welfare System on One citizen per year from 372,618 VND till 338,441 VND.

Within the monitored period, the median for one person was 345,728 VND, with a standard deviation of 44,906 VND.

Every year under review, the Vietnamese Welfare System spent an average of 30,148,721 million VND, with an average population of 92,2 million people.

During the studied period from 2011 to 2018, the Vietnamese Welfare System spent an average of 326,290 VND on one Vietnamese citizen per year. In the monitored period, there is visible average growth of average Welfare System Expenses on one citizen of 15,371 VND per year with an average growth coefficient of 1.0550 which means an average increase of 5.5% every monitored year.

References:

- Britannica (2022). Social welfare. In Britannica. (online). (2023-01-01). WWW: <https://www.britannica.com/topic/social-welfare>
- Cong Thong Tien Dien Tu Chinh Phu Nuoc Cong Hoa Xa Hoi Chu Nghia Viet Nam (2021). Cong Thong Tien Dien Tu Chinh Phu Nuoc Cong Hoa Xa Hoi Chu Nghia Viet Nam [online]. [2023-01-01]. WWW: <http://www.chinhphu.vn/portal/page/portal/chinhphu/solieungansachnhanuoc>.
- Friedl, Andreas & Görlich, Dennis & Horn, Sebastian & Krieger-Boden, Christiane & Lücke, Matthias, 2015. "How to deal with inequality: Welfare system challenges and European responses," Kiel Policy Brief 85, Kiel Institute for the World Economy (IfW Kiel).
- KROPÁČ, J. (2012). Statistika B: jednorozměrné a dvourozměrné datové soubory, regresní analýza, časové řady. Brno: Akademické nakladatelství CERM. ISBN 978-80-7204-822-9.
- MOLISA (2019). Statistical Application Niengiamthongkelaodong: Ban Bien Tap (Vu Ke Hoach - Tai Chinh) - Niem Giam Thong Ke Lao Dong, Nguoi Co Cong Va Xa Hoi - Bo Lao Dong - Thuong Bonh Va Xa Hoi. [online]. Ha Noi:

- MOLISA, 2019 [2023-01-01]. WWW:
<http://molisa.gov.vn/Pages/trangchu.aspx>.
- OECD/FAO. (2019). OECD-FAO Agricultural Outlook 2019-2028. OECD Publishing. DOI doi.org/10.1787/agr_outlook-2019-en.
 - VRBA, J. (2022). Úroveň sociálního zabezpečení ve státě Vietnam. Praha: Vysoká škola ekonomie a managementu. 85 pp.
 - WORLDOMETER (2021). Vietnam Population [online]. [2021-12-01]. WWW: <https://www.worldometers.info/world-population/vietnam-population>.

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