THE IMPACT OF SOCIAL TRANSFERS ON INEQUALITY (GINI), HUMAN DEVELOPMENT INDEX (HDI) AND POVERTY – CASE OF NORTH MACEDONIA

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ABSTRACT

Based on the HDI, Poverty, Risk of Poverty, Inequality, and other important life-being and well-being indicators, North Macedonia has made significant and solid progress. However, much more is needed, and a lot of work to be done. The study of poverty elements and other related markers in this research paper such as GINI, Poverty, and HDI, it is assumed that are interlinked to the social transfers, however not with singular limitations to the above. Data from the year 2013 to the year 2018, claims that about one in five people in North Macedonia is living in poverty, also, one out of three children is living in poverty. At the very edge of poverty are the most vulnerable segments of the population, the unemployed, with risk of circa 42% of poverty. Also of great concern is the household poverty rate in general, consisting of almost 20% of parents with two children at risk of poverty. These indicators alone are of great concern, and pretty much very far from the EU median and parameters. Given this situation, North Macedonia has lots of work to do. (Ramadani-Mehmedi, 2022) Social transfers are a methodology or a process of financial support, or goods transfers from a group of people, also institutions, and organizations to recipients who are benefiting from these goods.

The purpose of this study is to measure the impact of social transfers on the increased rations of HDI, decrease in inequality, and reduction of the poverty rate in North Macedonia. This paper by using the OLS methodology will study the impact of social transfers on HDI, GINI, and poverty rate in North Macedonia from 2008-2019. Secondary data about GINI Index is taken from the World Bank World Development Indicators data series, along with the Poverty rate and HDI from Countyeconomy. The results of the time series regression OLS technique suggest a positive and significant relationship between social transfers and HDI, and inverse relation between social transfers and GINI, and social transfers and poverty in North Macedonia.

1. INTRODUCTION

Social transfer programs in the middle–income nations and those in low–income countries differ significantly. Overall, middle–income economies have more administrative and financial capability to scale up social transfer programs. Of course, longer–term effects may be more influential, while short–term effects dominate discussion about consequences. The potential longer–term effect of social transfers cannot yet be determined with certainty, at least in the context of poor nations. On the other hand, in industrialized nations, a substantial body of evidence supports the

critical role of social transfers in reducing absolute poverty, promoting gains in well–being, and encouraging economic and social development (Barrientos & Zarazua, 2010). Social transfers are considered as the backbone of the economic transfers that reduce the poverty, increase points with the Human Development Index and decrease the disparity level of the pay income. Their effects are studied closely by economists in order to obtain exact info on the social well-being of a country's population's financial soundness. The case of North Macedonia is rather similar to other Western Balkan countries, which are characterized by high poverty, great disparity of pay-income equality, and rather modest social transfers with a large number of people at risk of poverty.

When comparing the levels of transfers, in particular the social transfers in countries in EU members, pensions are excluded. In Baltic countries and Scandinavian countries, the social transfers including pensions were almost doubled in regard to the amount provided for the year 2016. However, these figures are different for Greece, this ratio is almost 10 times higher than social transfers excluding pensions (Meglio,2018). The aim and purpose of this study will be to measure the possible and actual impact of social transfers on possibly increasing the rate of HDI, also, by decreasing the chances for inequality, and reducing of poverty rate in North Macedonia. In other words, this paper will investigate how social transfers affect North Macedonia's living standards, inequality, and poverty, making it a ground-breaking study for other scholars.

2. LITERATURE REVIEW

During the past 20 years, the issue of inequality in income and welfare disparity has become very important for countries across the globe. The country of North Macedonia is in development mode and ahead of a great challenge in diminishing income inequality, which has gotten to be as high as 4% every year during the last 15 years, referring to the GINI Index. Inequality and Socioeconomic misbalance are great challenges for a country in development, and ought to be treated as the main goal of every governmental body in order to increase the development both economically and socially for the upcoming years. Numerous elements can be targeted to affect socioeconomic segregation, with the social protection program being one of them.

The primary objective of the article by Petkovski and Kozuharov from 2018 was to illustrate how social transfer spending in the Republic of North Macedonia affected socioeconomic inequality as indicated by the GINI index. To do this, an econometric regression and correlation model was used to determine the link between social transfers and inequality. The findings from the study were employed to figure out the existence of a true bond and the influence that social transfer spending had on inequality. Analysis of regression and correlation data revealed a real and significant link between social transfer payments made to socially and economically vulnerable individuals and the GINI index, which measures socioeconomic inequality. According to the regression study, there is an inverse relationship between the Republic of Macedonia's social transfer spending as a percentage of GDP and socioeconomic inequality as indicated by the GINI coefficient. In other terms, higher social transfers will reduce inequality, whereas lower social transfers will result in greater economic disparity.

According to Miežienė & Krutulienė (2019) studies that are currently available show a significant negative relationship between social spending in EU nations and poverty. It implies that as social spending rises, the nation's at-risk-of-poverty rate tends to decline. However, studies have also shown that the impact of government spending on poverty may vary depending on the sector of expenditure, how effectively it is targeted, and how it is paid. This shows that it's vital to consider not only the amount of social spending but also the places the social transfers are directed to in order to lower poverty rates. Miežienė & Krutulienė, (2019) have also conducted a study of the potential impact of social investment and transfers on reducing poverty in EU nations. However, the analysis revealed that social protection transfers have a highly distinct impact on each country's percentage of those in danger of poverty. Family/child spending and social exclusion were found to be the most significant predictors for a relative antipoverty effect of social transfers, according to regression analysis. Even a small percentage increase in such spending can significantly increase the relative antipoverty effect of social transfers.

Mihaylova & Bratoeva-Manoleva, (2017) have used the decomposition of income inequality by factor components to examine the distributional impacts of various social payments in Bulgaria between 2000 and 2014. According to the findings, social transfers reduce income inequality, but the degree to which they do so differs depending on the type of payment. Family allowances have a pro-poor bias, but due to how small a percentage of beneficiaries' total income they represent, they have a significantly less overall influence on inequality than pensions, which have the

greatest impact since they make up a significant number of beneficiaries' total income.

Cerami (2003) examined the effects of social transfers in seven countries in Central and Eastern Europe with the main goal of providing an overview of the growth of social inequality in the region and quantifying the change in poverty rates for both the general population and the targeted groups. The findings demonstrated that social transfers greatly enhance the economic circumstances of families in need, even though receiving these benefits is not a guarantee that one can escape poverty.

2.1 Social Transfers

Social transfers are transfers of money or goods from one group of people in a society to another, for as from young people to the elderly (access to goods and social services). The receivers are eligible because they have earned benefits by following social or behavioral requirements, paying obligations (such as donations), or both (e.g., being sick; being poor; carrying out public works). This phrase has recently been used to refer to social assistance programs that have a single residency requirement as their only eligibility requirement (universal cash transfers) or programs that include additional behavioral requirements (conditional cash transfers) (UNICEF,2005).

Social protection is very important and crucial public right and service in North Macedonia (as they are education and health) that includes a wide spectrum of public initiatives and actions that approaches people in need and that are at risk of poverty, at risk of exclusion, that have to deal with risk etc. In order to define this through, academic circles are constantly debating on this issue, however, three main compartments of definitions are derived:

• **Social legislation** to bring a legal ground that is a definition of the right in protecting the population and their rights and secures a minimal standard to guard the interest of the citizens. Here are to be mentioned the Social Insurance, Health Insurance, Legal Framework on Work Safety etc.

• **Social insurance** comprises schemes based on contributions, which are in the management of social insurance funds of the government, and these are proving support in terms of financial means to citizens in hard times. In the states and countries that have social insurance benefits and systems incorporated and enacted, contributions are usually obligatory to the scheme (e.g., benefits for the unemployed, national or state insurance). For low-income nations and states, there can be few models of social insurance.

• **Social transfers** are not based on contributions, in a way that the person or individual that is receiving these funds does not need to return the funds or assistance back or pay for the same through any kind of taxes or fares. It is social support that is given by the public or civilian NGOs to those who are in a time of hardship and in need. Usually, this is the case for persons that are in poverty or risk falling into poverty (e.g, children's benefits, allowance for people with disabilities) (Meglio,2018).

2.2 HDI – Human Development Index and Social Transfers

Human Development Index is a second metric for multidimensional assessment of well-being. The Republic of North Macedonia's human development index has increased by 14% between 2000 and 2018 according to the United Nations Human Development Indicator, a statistic composite index combining indicators for life expectancy, education, and per capita income (ESRP, 2019). The HDI assesses human development by considering average performance in the three fundamental areas of standard of living, education, and health. These three areas are measured by the Gross National Income per capita adjusted for the price level of the country, anticipated years of schooling of children at school, entry age and mean years of schooling of the adults in the population, and life expectancy, respectively (Paliova, McNown & Nülle, 2019). The United Nations Human Development Index (UN HDI) indicates that North Macedonia has a level of development of about 0.76%, which places it in the higher half of the human development category (North Macedonia Country Study 2021 2, n.d.).

2.3 GINI Coefficient/Index and Social Transfers

The Lorenz curve and the hypothetical line of absolute equality are measured by the GINI index, which is represented as a percentage of the largest region under the line. Perfect equality is represented by a GINI value of 0, and perfect inequality by a GINI index of 100. Additionally, it can be claimed that social transfer programs help decrease income disparity among low-income families. However, they are only partially effective in reducing overall

inequality due to low-level benefits and modest program funding (Barrientos & Zarazua, 2010).

Since the richest 1% of earnings have experienced twice the growth rates of the bottom half, who make up 20% of the world's income, inequality has become a major problem on a worldwide scale. Despite widespread debates on the subject, North Macedonia has seldom ever addressed income disparity, many alone inequities in general. According to the GINI coefficient, North Macedonia's income inequality was modest in 2018 at 32% (UNDP, n.d.). North Macedonia scored an average of roughly 37 points in the index from 2009 to 2018, with a minimum of 33 points in 2018 and a high of 43 points in 2009. The most recent result, from 2018, is 33 points (GlobalEconomy.com, 2019)

2.4 Poverty and Social Transfers

The fraction of persons (in a certain age group) whose income is below the poverty line, calculated as half the median family income of the entire population, is known as the poverty rate. However, the relative income levels of the poor in two nations with the same rates of poverty may vary (OECD,2015). Social transfer programs have evolved over the past years into a crucial part of many developing nations' strategies for fighting poverty. Depending on their administrative, financial, and scientific capacities, these programs' goals, methods, and institutionalization vary. Overall, these programs significantly help developing nations address poverty and vulnerability among the poorest and most vulnerable families (Barrientos & Zarazua, 2010). 600 million people in the world today survive on less than $1.90 a day. In recent decades, the struggle against poverty has made significant headway. The proportion of people living in extreme poverty decreased from 36% in 1990 to 8.6% in 2018. Overall, nations with low levels of human development tend to have greater rates of severe poverty (UNDP,2019).

The COVID-19 virus and pandemic have worsened the burden of poverty in North Macedonia, which has the highest poverty rate in the Balkan area at 9% as of 2017. The government authorities implemented a number of actions, some of which included direct border-reduction stimulus packages. Approximately 30% of North Macedonia's population, including those working for minimum wage, live in poverty, according to statistics from the World Bank (BERTELSMANN STIFTUNG, 2022). While Macedonia continues to lag behind its European counterparts in all pillars of social rights, this development is insufficient. The very high rate of poverty in North Macedonia is a result of a number of factors, including a very high rate of unemployment, inadequate social protection programs, gender employment inequality, low wages, low minimum wages, and others. This indicates that the country's social assistance coverage ratio needs to be increased. According to the EU States and their respective populations, nearly 40% of North Macedonia's population was in danger of social exclusion and poverty in 2019, which was very high, compared to EU States (Majsoska - Blazevski,2020). Pensions play a crucial role of high importance in decreasing poverty, which contrasts social transfers that play a less important role. However, in this study social transfers will be used by excluding pensions.

3. RESEARCH METHODOLOGY AND DATA SOURCE – MODEL SPECIFICATION

The primary goal of this analysis is to quantify the potential and actual effects of social transfers on the rate of well-being, including but not limited to a rise in the HDI, a decrease in inequality, and a reduction in the poverty rate. GINI Indices are taken from the World Bank and the World Development Indicator Series of publishing, the Human Development Index is taken from the data of countryeconomy.com, and the poverty headcount ratio at 1.90$ a day is taken from the World Development Indicators of the publishing. In this regard, secondary data of the income gathered for social transfers of the Republic of North Macedonia are collected from the Budget of North Macedonia from the official site of the Ministry of Finance.

The research is carried out during an 11-year period, from 2008 to 2019. This analysis has been carried out by using panel regression with the OLS method using STATA14. For the purpose of the study three simple linear regressions have been constructed separately for each of the endogenous variable (GINI, HDI and poverty ratio). The explanation of the model's variables, their abbreviations, and their sources are presented in the table below (Table 1).

Table 1. Description of the data

Variable name	Description	Measurement	Source
Independent Variable			
Social_trans	Social Transfer	Log of Social Transfers Excluding Pensions	Budget of North Macedonia (MoF)
Dependent Variables			
HDI	Human Development Index	Log of HDI	Countryeconomy.com
GINI	GINI Index of Income inequality	Log of GINI	World Bank
Poverty	Poverty headcount ratio at 1.90$ a day (% of population)	Log of Poverty headcount ratio at 1.90$ a day (% of population)	World Bank

The constructed regression equations are defined as follows:

First regression model -   Y(GINI) = βo + β (Social_trans)

Second regression model – Y (HDI) = βo + β (Social_trans)

Third regression model – Y(Pvrty) = βo + β (Social_trans)

3.1. Results and Discussion

The descriptive statistics for the variables used in this research are shown in the table below (Table 2), including the number of observations, mean value, standard deviation, and minimum and maximum values for every variable.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. dev	Min	Max
Social_trans	12	36870.53	7641.111	26763.26	52580.9
GINI	10	36.92	3.104	33	42.8
HDI	11	0.754	0.012	0.74	0.77
Poverty	10	13	3.349	9.3	18.4

Source: author's calculations

First, it is conducted the correlation test (Table 3) to determine whether there was any link or significance between social transfers and the GINI, HDI, or poverty. Additionally, the results of the correlation matrix suggest that there is a highly significant inverse association between poverty and social transfers as well as between GINI and social transfers, per the correlation test. The correlation matrix's findings, on the other hand, suggest a highly substantial positive association between social transfers and HDI.

Table 3. Correlation matrix

	Socialtrans	GINI	HDI	Poverty
Socialtrans	1.0000			
GINI	-0.8822	1.0000		
HDI	0.9688	-0.9078	1.0000	
Poverty	-0.9002	0.9889	-0.9245	1.0000

Source: author's calculations

Finally, the association between social transfers and the GINI, HDI, and poverty in the case of North Macedonia for the years 2008 to 2019 has been established independently using panel regression utilizing the robust standard error.

Regarding the first model it can be seen from Table 4a that the number of observations is 10. And for every 1% increase in social transfers, the GINI coefficient decreases by 0.5%. This coefficient is highly statistically significant, because the t statistics in absolute value is much greater than the critical value. Even based on the p-value it is observed that p is 0.000 which is less than 0.001. The coefficient of determination is 0.8513 which means 85.13% of variations in the GINI coefficient can be explained by social transfers.

$$\log(GINI)= 8.8054 – 0.495\log(Social\_trans) \tag{1}$$

Table 4a. Results of the time series regression – OLS technique

Variable	Coeff	Robust St. errors	T	P>|t|
Dependent variable GINI	-0.495***	0.591	-8.38	0.000
Constant	8.805	0.625	14.08	0.000
Nr of observations=10				
F(1,8)=70.31				
R^2=0.851				
Prob > F= 0.0000				

*** Significance levels of 10%, 5% 1%
Source: author's calculations

In Table 4b the results from the second regression model are shown. The number of observations is 11. According to the linear regression model (2) for every 1% increase in social transfers HDI increases by 0.09031%. This coefficient is highly statistically significant, because the t statistics in absolute value is much greater than the critical value. Even based on the p-value it can be observed that p is 0.000 which is less than 0.001 than the significance level. The coefficient of determination is 0.9186 which means 91.86% of variations in HDI can be explained by social transfers.

$$\log(HDI)= -1.226+0.0903\log(Social\_trans) \tag{2}$$

Table 4b. Results of the time series regression – OLS technique

Variable	Coeff	Robust St. errors	T	P>|t|
Dependent variable HDI	0.090***	0.009	9.79	0.000
Constant	-1.226	0.964	-12.72	0.000
Nr of observations=11				
F(1,9)=95.86				
R^2=0.9186				
Prob > F= 0.0000				

*** Significance levels of 10%, 5% 1%
Source: author's calculations

Table 4c presents the results from the third regression where the number of observations is 10. According to the regression model (Equation 3) for every 1% increase in social transfers, poverty decreases by 1.6%. Holding the other factors unchanged, this coefficient is highly statistically significant, because the t statistics in absolute value is much greater than the critical value. Even based on the p-value, p is 0.000 which is less than 0.001 than the significance level. The coefficient of determination is 0.9132 which means 91.32% of variations of Poverty can be explained by social transfers.

$$\log(poverty) = 19.28145 - 1.60\log(Social\_trans) \tag{3}$$

Table 4c. Results of the time series regression – OLS technique

Variable	Coeff	Robust St. errors	T	P>|t|
Dependent variable Poverty	-1.604***	0.126	-12.72	0.000
Constant	19.281	1.309	14.72	0.000
Nr of observations=10				
F(1,8)=161.90				
R²=0.9132				
Prob > F= 0.0000				

*** Significance levels of 10%, 5% 1%
Source: author's calculations

4. CONCLUSION AND LIMITATIONS

Regarding the question of how social transfers affect income inequality, standards of living, and poverty, significant progress can be seen in the case of North Macedonia, but much more work needs to be done in order to be effective. In this research, it is examined the potential and actual effects of social transfers on income inequality, standards of living, and poverty in North Macedonia between 2008 and 2019 using the OLS technique. In this regard, secondary data were used. According to the results social transfers appear to have a positive and significant link with the the HDI and statistically significant negative link with GINI Index, , and poverty levels, This study is an initiating study for other researchers because in this paper it is analyzed the impact of social transfers on three important elements like HDI, GINI, and Poverty. In the future, it would be interesting to research not only the impact of social transfers but also as well as the areas in those social transfers are allocated (Miežienė & Krutulienė, 2019).

The most obvious limitation in this research is that of a small sample size, a limitation that prevented a clear generalized statement about the role played by Social transfers on the GINI Index, poverty, and Human Development Index.

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APPENDIX Excel table with Dataset of GINI, HDI, Poverty, social transfers, and pensions for North Macedonia

Years	Social Transfers Including Pensions (mln MKD)	Pensions (mln MKD)	Social Transfers Ecx Pensions (mln MKD)	GINI	HDI	POVERTY headcount ratio at 1.90$ a day % of the population
2008	57,717.00	30,953.74	26,763.26	n/a	0.74	18.40
2009	62,316.00	33,537.64	28,778.36	42.80	0.74	17.60
2010	64,578.00	34,437.32	30,140.68	40.20	0.74	16.00
2011	69,590.00	35,751.31	33,838.69	39.40	0.75	13.90
2012	70,430.00	37,292.59	33,137.41	38.10	0.75	12.90
2013	75,053.00	40,812.95	34,240.05	36.20	0.75	11.40
2014	78,769.00	43,931.60	34,837.40	35.20	0.76	10.70
2015	83,093.00	45,569.24	37,523.76	35.60	0.76	10.10
2016	89,459.00	48,248.22	41,210.78	34.50	0.77	9.70
2017	94,796.00	51,906.22	42,889.78	34.20	0.77	9.30
2018	100,733.00	54,227.72	46,505.28	33.00	0.77	n/a
2019	108,899.00	56,318.10	52,580.90	n/a	n/a	n/a