RELATIONSHIP BETWEEN ECONOMIC INEQUALITY AND SOCIAL INEQUALITY

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ABSTRACT

In recent years, there has been a growing concern about the rising income inequalities, with particularly stark rises in inequality in the United States and also a substantial widening of the income gap in Europe. This has led to a growing number of voices expressing their disapproval of these trends. The significance of the expansion of economic disparities has not only attracted the attention of politicians and academics, but it is also widely discussed on the streets of the world today, with the 'Occupy Wall Street' movement being the most famous example of such demonstrations. This movement and its frequently referenced motto, "We are the 99%," alludes explicitly to a rising disparity in the distribution of wealth (see, for example, the coverage of the movement by the New York Times in 2011, as well as the web blog entitled "We are the 99%," published in 2012). An OECD report that was released not too long ago focused on the recent rise in income disparity that has been seen throughout the member nations of the EU (2011). An intriguing picture emerges when one examines the evolution of income disparity over the course

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of the last three decades. Beginning in the 1980s, there appears to have been a general tendency toward increasing the economic disparity between different groups of people. In the 1980s, the Gini coefficient was calculated at 0.29, but by the late 2000s, it had significantly increased to 0.32. The rise in economic disparity in nations that were once considered to be "equal societies," such as Germany and the Nordic countries, is particularly startling. In general, there appears to be a tendency that is converging towards a generally larger degree of income disparity.

Keywords: Economic, Inequality, Social, academics

INTRODUCTION

The factors that contributed to the widening income gap over the course of the last few decades have been the focus of considerable political and academic investigation. The research that was published by the OECD in 2011 gives a plethora of alternative mechanisms that might explain this phenomenon. These mechanisms range from increasing pay disparity to differing taxation policies and family patterns. The subject of what the repercussions of growing income disparities in the EU are is a question that may be seen from a different viewpoint when looking at the growth in income inequality; in other words, why should we worry about the widening of the income gap? And which concrete repercussions might we anticipate as a direct result of a larger separation between the top 1% and the bottom 99% of the population? These concerns have received more attention as a result of a book written by Wilkinson and Pickett titled "The Spirit Level: Why More Equal Societies Almost Always Do Better." This book has been quoted several times (2009). They are unable to produce persuasive empirical proof for their claims, despite the fact that their fundamental premise, which states that more equal societies do better on a wide variety of social outcomes, is intuitive and obvious. Nevertheless, as a result of their study, a more in-depth investigation of the effects of wealth disparity has been undertaken. This study presents a literature analysis on the links between income inequality and significant social outcome variables in order to deepen the discussion on the impact of growing income inequality on a variety of social outcomes. In this evaluation of the relevant research, the primary social outcome variables that were taken into consideration were those pertaining to happiness, crime, health, social capital (trust), education, voting behaviour, and female labour participation. The following is the structure of this report: In the following part, we will provide a concise explanation of several

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methodological concerns and technical phrases that are intended to make the reading of the literature review easier.

DEFINING AND MEASURING INEQUALITY

In the previous chapter, "fairness" was brought up as one of the last economic goals to be examined. It is important to note that "equality" is not the same as this objective, which differs in key ways. Even if there is a significant wealth gap within a community, it is possible that the distribution of wealth should be seen as equitable. Few people long for a world in which everybody makes exactly the same amount of money. What exactly does it mean for a society to be described as neither "too equal" nor "too unequal"? We need some objective measurements of inequality before we can even begin to talk about how to establish a decent balance in the distribution of income and wealth. These objective metrics will enable us to make comparisons across time and between different cultures. First, we will evaluate what it is that we are measuring, and then we will examine how we are measuring it.

Inequality of what?

The majority of people, when the topic of inequality is brought up, think in terms of differences in wealth or income. These are essential components of any economic study conducted on the subject matter. However, it is also essential to acknowledge that inequality is a more general idea that goes beyond the sphere of monetary disparity. This is very significant. Let us explore a few examples. There is a massive gap between the quality of medical treatment in different parts of the world. The average life expectancy in various tropical nations, such as Malaria, Measles, and Tuberculosis, is much lower compared to that of the United States and other prosperous countries. These illnesses are either preventable or curable.

MEASURING INEQUALITY

In spite of the fact that there are many different kinds of inequality, for the sake of our economic study, we are going to concentrate largely on the unequal distribution of income and wealth. The two criteria that are most frequently used to quantify the degree of income disparity are:

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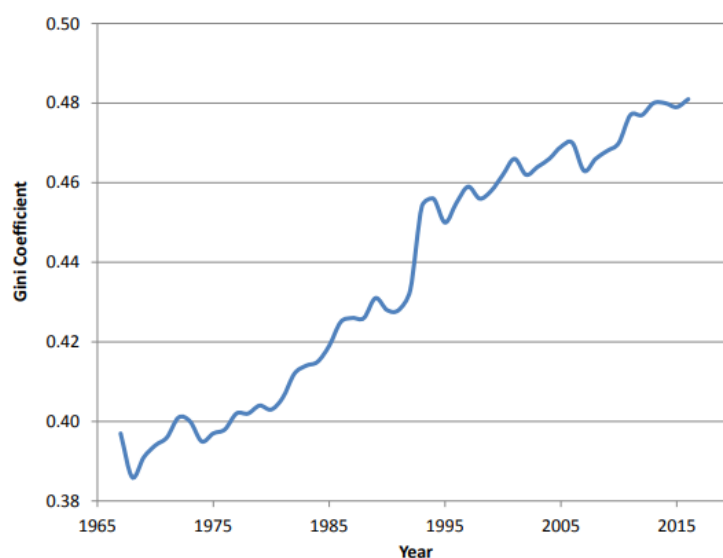*E-mail: rk17011970@gmail.com*

- Measure the income share (percent of all income) held by various groups ordered by income from poorest to richest, such as the bottom 20%, the middle 20%, the top 1%, etc.

- Measure the overall distribution of income in a society, using mathematical and graphical techniques.

INEQUALITY TRENDS AND FURTHER CONSIDERATIONS

We are now in a position to utilise data on inequality to monitor how inequality evolves over time. In this section, we will first examine the changing patterns of income inequality in the United States, and then we will discuss some additional perspectives on inequality, including the inequality of wealth, as well as how inequality is related to factors such as race, age, education, and other aspects of society.
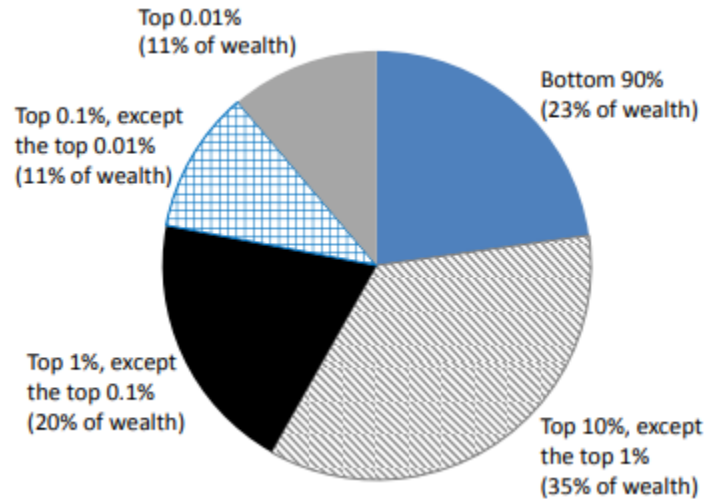
Income inequality over time in the United States

Nobody denies the fact that the gap between rich and poor in the United States has widened over the past several decades. This is seen in Figure 10.4, which presents the Gini coefficient for the United States from 1967 to 2016, with the data coming from the United States Census Bureau. We can see this for ourselves. In 1968, the Gini coefficient hit an all-time low of 0.386, setting a new record. Following that, the Gini coefficient went up in 39 out of the subsequent 48 years.

Source: U.S. Census Bureau, Historical Income Tables: Households, Table H-4.

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Gini Coefficient in the United States, 1967-2016

The Distribution of Wealth in the United States

Disparity in both income and wealth has been on the rise in recent decades, mirroring the rise in income inequality. Similar patterns emerge when one plots, across time, the wealth shares possessed by the top groups in the United States in comparison to the income shares seen in Figure 10.5. Before the Great Depression, the wealthiest one percent of the population held more than half of the nation's wealth. By the late 1970s, that proportion had fallen to less than 25 percent, but it has since gradually climbed to roughly 45 percent today. 13 When we think about the tremendous disparity in wealth that exists in the world, we are forced to reconsider the issue of opportunity. Is it possible for people who have very little wealth, or even negative wealth, to reach a satisfactory degree of well-being in their lives? Furthermore, tremendous wealth frequently bestows both economic and political influence upon the individuals who possess it. When wealth is distributed in an extremely unequal manner, power to oversee the operations of enterprises and to influence government policy via contributions to political campaigns and other means may become concentrated in the hands of a relatively small number of individuals. They might then employ this influence to keep current inequities in place or perhaps make them worse. We circle back around to this topic at a later point in the chapter.

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LITERATURE REVIEW

In instance, Thurlow (1971) makes the argument that "the person is just expressing an aesthetic desire for equality or inequality comparable in nature to a liking for paintings." Hirschman and Rothschild offer an interpretation that is both intuitive and all-encompassing on the effect that income disparity has on the well-being of individuals (1973). These writers describe the impact that wealth disparity has on happiness by using the metaphor of a traffic gridlock on a two-lane highway, and they refer to this phenomenon as the "tunnel effect." (ibid, p.545) Imagine that I am driving through a tunnel with two lanes, each lane heading in the same direction, and that I encounter a significant backup of traffic.

A number of social researchers have, on the basis of earlier empirical research, identified a number of reasons that explain unequal fertility. These factors include: These considerations are broken down further below. The association between increased educational opportunities for women and lower birthrates has been regarded as the most influential of all the connections that can be made between social factors and fertility. Although some of these findings were discussed in the introduction, in this section we will take a more in-depth look at the connection between a woman's level of education and the likelihood that she will have children. a number of research have shown that there is a critical relationship between the education of women and gender equality, as well as its effect on the declining birthrate.

There is a considerable amount of evidence in the study that leads to an inverse association between the amount of education a woman obtains and her rate of fertility. This is supported by the fact that higher educated women have fewer children (Cochrane, 1979; Caldwell, 1982). It is anticipated that the desire for children will be inversely related to the educational attainment of women, due to the correlation between higher levels of education and increased chances of finding work in contemporary fields. This is because higher levels of education are associated with increased chances of finding work in contemporary fields. The cost of bringing up a child is effectively made more expensive for mothers who have completed a higher level of education than it is for their counterparts who have completed a lower level of education. This is due to the fact that more educated mothers want their children to complete higher levels of education (Mason, 1984).

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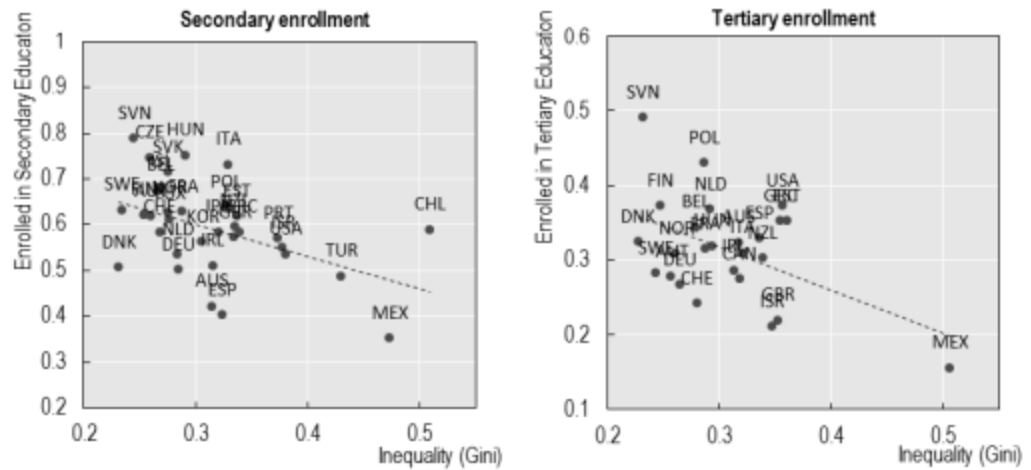*E-mail: rk17011970@gmail.com*

According to Levine (1994), the purpose of education is to change attitudes, values, and goals more structurally, such as through enhancing employment opportunities or even reading ability, rather than to change the attitudes, values, and goals of individual students. Women could reassess the number of children they believe to be the "optimal" number as a result of the experiences they have had while attending school. It's possible that going to school will act as a spark for many women, leading them to change their attitudes on how to cope with health difficulties or the ideal number of children they should have. When compared to women who have attended school at some time in their lives, women who have never been to school have a significantly lower likelihood of seeing and reading health messages, as well as of making use of health services.

METHOD

A regression analysis was used to assess the changes in regional income inequality between 2010 and 2015 across 375 metropolitan areas in the United States. These changes were studied between the years 2010 and 2015. The data from 2010 are used to generate the independent variables, and the dependent variables illustrate how those independent variables changed between the years 2010 and 2015. As a result, this study employs data from cross-sections. When the data are plotted, all of the variables exhibit a linear relationship with the variables that are reliant on them. As a result, the analysis of regression using the ordinary least square is appropriate. A residual analysis has been carried out in order to investigate whether or not the presence of residuals in the model will have an effect on the validity of the results that have been provided. Both of the independent variables show signs of having a normal distribution (Figures 3 and 4 in the appendix), therefore there are no indications of any problems with heteroscedasticity.

DATA ANALYSIS

There is a negative correlation between income inequality and the average level of educational attainment among OECD nations. Figure 4 illustrates a straightforward association between the proportion of a country's population enrolled in upper secondary (the panel on the left) and higher education (the panel on the right) and the Gini coefficients measuring the degree of inequality in disposable income.

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**Inequality and enrolment rates across OECD countries, 2010**

This graph was arrived at by combining data from the OECD on the number of students enrolled (by age class and degree of education) with data on the population broken down by age class. The ratio of students enrolled in upper-level secondary education is calculated in relation to the population aged 15 to 19 years old (20-24 for the ratio of tertiary enrolled). The calculations for both ratios are done in 2010. Inequality, as assessed by the Gini coefficient, is compared to how it was in 2005 (left panel) and 2000 (right panel) when people were 10 to 14 years old (right panel). At the 1% confidence level, both regression coefficients exhibit statistically significant levels of significance.

This section of the analysis makes use of individual-level survey data (from the OECD Adult Skills Survey, PIAAC) in order to estimate whether the link between educational attainments and inequality depends on parents' educational background (PEB, a proxy for socio-economic background). Additionally, the analysis makes use of within-country variation in order to account for time-invariant observed and unobserved country characteristics. This section of the analysis is presented below. In order to take use of such variance in a cross-sectional survey like PIAAC, the exercise takes advantage of variations in the achievement of human capital between age cohorts (within a country). To be more exact, people are grouped together according to their age by five years (indexed with t), and then each age group is given the measure of inequality that existed in their nation when they were between the ages of 10 and 14.25. The empirical equation that serves as the baseline is:

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$$HC_{i,t,c} = \boldsymbol{\beta_1}\mathrm{PEB}_{i,t,c} * Ineq_{t,c} + \boldsymbol{\beta_2}\mathrm{PEB}_{i,t,c} + \theta X_{i,t,c} + \mu_t + \mu_c + \epsilon_{i,t,c}$$

where HC is a measurement of human capital for individual I in nation c, PEB is a set of three indicators for her parent's educational background being either "Low," "Medium," or "High," and Ineq is an index of inequality in the country. 26 In this particular specification, the three parameters located in section 2 measure the average educational outcomes of individuals who come from different parental backgrounds, whereas the parameters located in section 1 capture whether or not such averages vary with the degree to which there is income inequality in the country. This approach makes it possible to conduct panel regressions (for a given nation and time period) that take into account both the fixed effects of the country (c) and the common shocks (t). Therefore, it is possible to estimate the parameters while taking into consideration time-invariant country factors that might potentially skew simple cross-country estimations. For instance, this would be the case if there is a correlation between inequality and the quality of the educational system, as well as other policies and institutions that impact educational outcomes. (Please refer to Annex 3 for a comprehensive explanation of the estimation method, as well as a discussion of the other factors that were taken into consideration.)
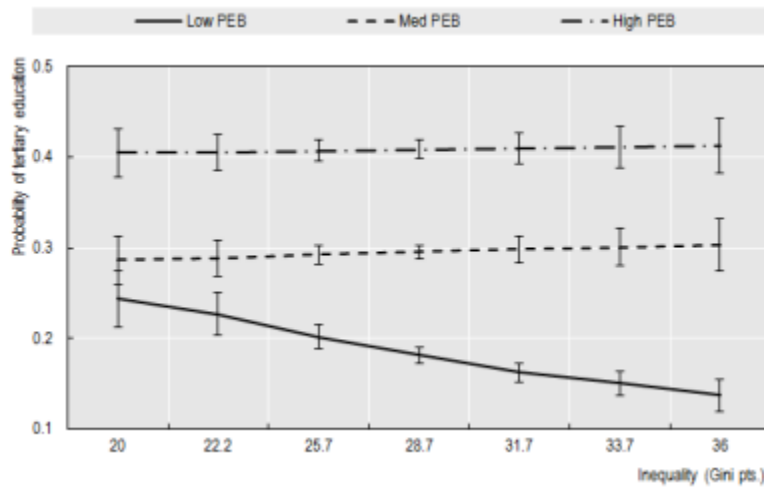
Average probability of tertiary education by parental educational background and inequality

The graph depicts the average expected likelihood, as a function of the degree of inequality, that persons from low-, middle-, and high-income families (in terms of their educational background)

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will acquire higher education (Gini points). A low PEB means that neither of the parent's completed their higher secondary schooling; High PEB: at least one parent has completed all levels of secondary and post-secondary education up to but not including tertiary education. Medium PEB: at least one parent has completed all levels of secondary and post-secondary education. The baseline probability for each group are represented by the dashed lines. The bars represent confidence intervals at the 95% level. On the X-axis of the graph, the values of the Gini coefficient indicate the percentiles of the underlying distribution of inequality indices. Particularly noteworthy are the 25th (25.7), the median (28.67), and the 75th positions (31.7).

EMPIRICAL RESULTS

The results of this study will be discussed in the next portion of the article. Following a discussion of descriptive statistics and correlations, the results of the regression analysis will next be provided.

Descriptive Statistics

The dependent and independent variables each have their own set of descriptive statistics presented in Table 2. The average value of the Gini Index is 0.46, as can be seen in the table below. This is a large deviation from the standard of zero, which represents complete equality. GDP per capita's mean value averages at roughly 50,000 US dollars. There appears to be a significant amount of fluctuation in GDP Growth, with 65% being the highest figure and -28% being the lowest value. On the other hand, the mean number for GDP comes out to roughly 3% on average. The remaining independent factors are examined in an effort to provide an explanation for any further variances found in the dependent variables.

Descriptive Statistics

Variables	N	Mean	Standard Deviation	Minimum	Maximum
GDP Growth	357	0.03	0.08	-0.28	0.65
GDP Initial	357	40869	11625	17906	93235

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Gini Index	357	0.46	*0.02*	0.39	0.54
Average Income	357	64214	11005	45141	130074
Population	357	704180	1575080	55375	1.87e+07
Innovation	357	28.27	48.82	0.41	561.57
High School	357	0.17	0.06	0.02	0.37
Human Capital	357	0.25	0.08	0.12	0.57
Crime Rates	318	372.14	164.39	53.40	1057

Correlation Analysis

The dependent and independent variables each have their own set of descriptive statistics presented in Table 2. The average value of the Gini Index is 0.46, as can be seen in the table below. This is a large deviation from the standard of zero, which represents complete equality. GDP per capita's mean value averages at roughly 50,000 US dollars. There appears to be a significant amount of fluctuation in GDP Growth, with 65% being the highest figure and -28% being the lowest value. On the other hand, the mean number for GDP comes out to roughly 3% on average. The remaining independent factors are examined in an effort to provide an explanation for any further variances found in the dependent variables. The findings of the bivariate analysis between the dependent variables and each independent variable are presented in Table 3, which can be seen here. In a single regression analysis, the average income, the total population, and the percentage of the total population that does not have a high school diploma are the factors that are important in predicting the increase of GDP per capita. There is no statistically significant bivariate link between the Gini Index, Innovation, Human Capital, and Crime Rates. Both the High School variable and the Crime Rates variable exhibit indications that are inconsistent with the idea. For GDP Level, all factors except Crime Rates are significant. Gini Index at the level of 5%, with the remainder measured at the level of 1%.

GDPCorrelations

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Variable	GDP Growth	GDP Level
Gini Index	0.073	0.159**
Average Income	0.122***	0.614***
Population	0.082**	0.422***
Innovation	0.034	0.488***
High School	0.164***a	-0.164***
Human Capital	-0.100a	0.583***
Crime Rates	0.091a	-0.018
*** Significant at 1% level ** Significant at 5% level		
a, variable show conflicting sign		

As can be seen in, there is a correlation between some of the factors that are independent (Table 8, Appendix). This points to the existence of a multicollinearity issue that may arise. There is a strong relationship between Human Capital and a number of the other regressors, especially Innovation (0.678) and Average Income (0.678). (0.605). Therefore, it is reasonable to anticipate that people with greater levels of education will have better earnings and will submit more patent applications. Additionally, there is a somewhat robust inverse relationship between the High School variable and human capital (-0.546). Aside from Human Capital, there is a correlation between Average Income and Innovation (0.534) as well as Population (0.474). indicating that those living in more populated metros have, on average, a greater income than those living in less popular metros.

Regression Analysis

An OLS regression is carried out in 357 metropolitan areas in order to investigate the extent to which income inequality as well as the controllable variables are related to GDP Growth and GDP Level. According to the Fstatistics, every single regression equation has a significance level of one percent or above. The outcomes of the regressions are summed up in Table 4 and Table 5, respectively.

Growth Regression

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Variables	Eq. (1)	VIF	Eq. (2)	VIF	Eq. (3)	VIF	Eq. (4)	VIF	Eq. (5)	VIF
Constant	-0.081		-1.643***		-0.868**		-0.913**		-0.978*	
	(-0.97)		(-3.80)		(-2.24)		(-2.42)		(-2.77)	
Gini	0.246	1.00	0.508**	1.26	0.240	1.10	0.507***	1.11	0.242	1.10
	(1.32)		(2.46)		(1.22)		(-0.42)		(1.23)	
Average	-	-	0.136***	2.03	0.069*	1.60	0.149***	1.71	0.079	1.35
Income			(3.44)		(1.92)		(4.23)		(2.40)	
Population	-	-	-0.001a	1.54	-0.003a	1.52	-	-	-0.002	1.43
			(-0.14)		(-0.57)				(-0.41)	
Innovation	-	-	0.011**	2.06	0.004	1.74	0.013**	2.06	-	-
			(2.12)		(0.70)		(2.53)			
High School	-	-	0.073a (0.73)	1.75	0.268***a (0.84)	1.26	-	-	0.247* (3.07)	1.11
Human Capital	-	-	-0.396***a (-3.71)	3.52	-	-	-0.422***a	2.52	-	-
Crime	-	-	0.000a	1.21	0.000a	1.19	-	-	0.00002	1.15
Rates			(0.45)		(0.84)				(0.73)	
R2	0.005		0.096		0.056		0.088		0.055	
Adj. R2	0.002	0.076		0.038		0.078		0.040		

The GDP Growth is analysed using Equation 2, which takes into account all of the independent factors. The model's R2 after adjustments is equal to 0.076. The Gini coefficient has a positive

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sign and becomes significant at a level of 5 percent; this indicates that as GDP per capita growth increases, so does inequality. If we assume that all of the other variables will remain the same, we can calculate that the Gini coefficient will go up by 0.508 units for every unit that the GDP per capita grows. This is consistent with the outcomes that were anticipated. There is a substantial relationship between the variables Average Income, Innovation, and Human Capital. Although it is not significant, the High School variable has a positive sign, which goes against the predictions of the theory. In this particular instance, the model forecasts the opposite result: as the number of residents with an education level lower than that of a high school graduate increases, growth will follow and increase as well. The first equation has a potential problem with multicollinearity, namely with the Human Capital variable, which has a quite high value for the variance inflation factor (VIF), which is 3.52.

CONCLUSION

In the United States, the link between economic growth and inequality on a regional level was investigated in this research. Data from 357 metropolitan statistical areas were used in the analysis of this relationship. There is a great deal of controversy around the hypotheses regarding the impact that income disparity has on the expansion of the economy; more often than not, these hypotheses provide a murky response. Those who advocate for a negative connection emphasise how educational attainment among lower socioeconomic classes can suffer when there is inequality, how this can lead to pressure for redistribution policies, how it can result in sociopolitical instability, and how it can lead to excessive rent-seeking. The incentives offered by high rewards and technical advancement, which give birth to both inequality and growth, are frequently highlighted by academics who think there is a positive link between the two concepts. In the short run, the findings of our analysis indicate that there is a choice to be made between increasing inequality and expanding the economy.

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