

# Dependence of the Average Income in the Country on Factors of Education, Health, Personal Safety and Ecology

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**Abstract.** *In the life of any person, expected or unforeseen situations arise that require not only moral, but also financial resources. At the same time, these financial resources are influenced by the general well-being of both personal and external environment. It is thought that more highly educated workers will earn higher wages, other things being equal, simply because they are more productive than their less educated counterparts. A fundamental debate centers on whether poverty or inequality drives violent crime. Although many studies show a positive relationship between income inequality and the rate of violent crime, some critical studies using similar data argue that when poverty is added to the regressions, income inequality is not significant anymore and (absolute) poverty explains the crime rate, while (relative) income inequality does not. Also, there is an idea that the more income, the lower the likelihood of illness and premature death. That is why it is important to understand which of the factors and how exactly actually affect financial well-being.*

**Keywords:** *income, education, health, personal safety, ecology.*

**JEL Classification:** *D31, I20, Q57*

## 1 Introduction

In recent years, increase the role of the formation of the system financial security at all levels, whether it be macroeconomic security, security of enterprises in various spheres and industries, or financial security of a single personality. This problem remains one of the main and, accordingly, the most urgent in modern conditions of the implementation of an innovative economy. On the one hand, everyone understands the importance and necessity of ensuring financial security, and on the other hand, very many of its aspects are beyond a comprehensive systemic understanding and even more effective practical implementation.

It is the personality that is the most important and integral part of the process of ensuring the country's security, without a stable state of which the development of the country as a whole is impossible.

In the life of any person, expected or unforeseen situations arise that require not only moral, but also financial resources. At the same time, these financial resources are influenced by the general well-being of both personal and external environment.

It is thought that more highly educated workers will earn higher wages, other things being equal, simply because they are more productive than their less educated counterparts. A fundamental debate centers on whether poverty or inequality drives violent crime. Although many studies show

a positive relationship between income inequality and the rate of violent crime, some critical studies using similar data argue that when poverty is added to the regressions, income inequality is not significant anymore and (absolute) poverty explains the crime rate, while (relative) income inequality does not. Also, there is an idea that the more income, the lower the likelihood of illness and premature death. That is why it is important to understand which of the factors and how exactly actually affect financial well-being.

## 2 Literature review

Brian Burnsed researched that those holding bachelor's degrees earn about \$2.27 million over their lifetime, while those with master's, doctoral, and professional degrees earn \$2.67 million, \$3.25 million, and \$3.65 million, respectively. Those with bachelor's degrees, no matter the field, earn vastly more than counterparts with some college (\$1.55 million in lifetime earnings) or a high school diploma (\$1.30 million lifetime), indicating that no matter the level of attainment or the field of study, simply earning a four-year degree is often integral to financial success later in life (Burnsed, 2011).

Hemaid Alsulami also considered this topic in his work "The Effect of Education and Experience on Wages: The Case Study of Saudi Arabia". After analyzing 2 options for regions: Large region

(including Riyadh-Makkah-Eastern Region-Madinah-Asir) or small region (AlQassim-Tabuk-Hail-Jazan-Najran-AlBahah – AlJawf-Northern Borders). He obtained the following results (Table 1).

Stephan Kampelmann, François Rycx, Yves Saks & Ilan Tojerow were interested in a similar issue, but in terms of companies. Estimates thus support the existence of a ‘wage-compression effect’, i.e. a situation in which the distribution of wage costs is more compressed than workers’ education-productivity profile. More precisely, they suggest that firm rents increase on average by 1.4% (0.6%) in the long run (short run) if the fraction of high-educated workers within a firm increases by 10 percentage points (and is compensated by a proportional decrease in the share of low-educated workers). Yet, the size of this effect is found to depend crucially on workers’ characteristics (i.e. their age and gender) (Kampelmann, Rycx, Saks, Tojerow).

The first descriptive analyses conducted by the Minimum Wage Commission (2016) suggest that the statutory minimum wage may have led to a reduction in working hours in the more heavily affected portions of the labor market. Their findings show that full-time employees who were paid below the minimum wage in 2014 reduced their weekly working hours by as much as approximately 10 percent after the introduction of the minimum wage. Bruttel et al. (2018) report an even stronger decrease of about 21 percent in weekly working hours among full-time employees who earned less than €8.50 before the reform (Bruttel, Baumann, Dütsch, 2018).

Report Lonnie Golden shows that lowest-income workers have the most irregular work schedules. Those with incomes below the low salary of \$22,500 (just below the current salary minimum threshold for assured FLSA overtime coverage) have a slightly higher-than-average

proportion working irregular shifts (11 percent versus 10 percent). In addition, those working irregular shifts or variable hours (rotating or split shifts) work a relatively longer workweek, on average (Golden).

In the same time the greater one’s income, the lower one’s likelihood of disease and premature death (National Center for Health Statistics). Studies show that Americans at all income levels are less healthy than those with incomes higher than their own (Braveman Paula, Catherine Cubbin, Susan Egerter, etc.). Not only is income (the earnings and other money acquired each year) associated with better health, but wealth (net worth and assets) affects health as well (Pollack, Cubbin, Sania, etc.).

In 2011, almost one-quarter (23.3 percent) of adults with family incomes under \$35,000 per year had no usual place of medical care, compared with 6.0 percent of those with incomes of \$100,000 or higher. Similarly, 22.6 percent reported not having seen a dentist in more than five years, compared with 4.3 percent of adults with family incomes over \$100,000 (Schiller, Lucas, Peregoy, 2012).

Income inequality is blamed for being the main driver of violent crime by the majority of the literature. But Baomin Dong, Peter H. Egger and Yibei Guo find that it is the poverty level in rural areas and the average income level in urban areas, rather than income inequality, that contribute to the local rate of incidence of violent crimes in China (Baomin Dong, Peter H. Egger and Yibei Guo).

The continuing surge in carbon dioxide (CO2) emissions, along with changes in climate, is causing an environmental threat to the mental and physical health of humankind. Holland, Peterson, and Gonzalez (Holland, Peterson, Gonzalez) investigated the associations between biodiversity, income inequality, and other variables in selected nations from 1980–1984. The results indicated that the decline in inequality hindered biodiversity loss.

**Table 1** The influence of the education factor on the average wage (Hemaid Alsulami)

| Category            | Factor: Academic Degree |                       |
|---------------------|-------------------------|-----------------------|
|                     | Average Male Salary     | Average Female Salary |
| Doctoral Degree     | 26,308                  | 21,553                |
| Master Degree       | 19,765                  | 13,038                |
| Bachelor Degree     | 12,538                  | 11,511                |
| Diploma             | 9889                    | 13,250                |
| High School or less | 11,306                  | 6333                  |

Source: (Alsulami, 2018)

Clement and Meunie (Clément, Meunié) studied the association between income distribution, water pollution, and SO2 emissions in 83 transition and emerging nations from 1988 to 2003. The outcomes revealed that the impact of the Gini is insignificant on SO2 emissions, but in the transition countries' rise in the Gini coefficient increased water contamination. Similarly, Jorgenson et al. (Jorgenson, Schor, Huang) examined the association between the Gini coefficient and carbon emissions in the United States of America. The outcomes showed no significant association between income disparity and CO2 emissions.

This analysis of the literature has shown that almost all factors have one or another measure of influence on the financial protection of people.

### 3 Data and methodology

In this paper, the analysis will be carried out using the STATA software.

Data taken from the official website of the Statistical Office of the European Union – Eurostat. Analyze data for 2016–2018 from 29 countries (Belgium, Bulgaria, Czechia, Denmark, Germany (until 1990 former territory of the FRG), Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, Iceland, Norway).

The "Mean and median income – EU-SILC and ECHP surveys" was taken as the dependent variable (The unit of measurement is the euro) (mi).

To understand how time affects wages, the indicator was taken – Average number of usual weekly hours of work in main job (hours). Age range from 15 to 74 years to cover as

much as possible the majority of the working population (hw).

As part of the analysis of the impact of population education, data on the high-level achievement of tertiary education (level 5–8) were taken. Age range from 15 to 74 years (te).

To assess health, a self-assessment indicator was selected to analyze not the number of diseases, but the well-being of people over 16 years. The regression involved the percentage of those who answered " Very good or good "(%) (sp).

To calculate the impact of personal security, several indicators were taken: crime in the EU-SILC survey as a percentage (cr) and the number of Theft per hundred thousand population (th) (according to police).

And to analyze the impact of ecology on income, we took such indicators as Greenhouse gas emissions (source: EEA) (toni per capita) (ge) and Generation of waste in tones (gw).

A more detailed description of the independent data can be seen in Table 2.

### 4 Research results

Building a regression, we can immediately see that the independent variables describe the average wage by 81.3%. However, R2 is based on the sample and is a positively biased estimate of the proportion of the variance of the dependent variable accounted for by the regression model (i.e., it is too large); an adjusted R2 value ("Adj R-squared" row), which corrects positive bias to provide a value that would be expected in the population = 77,57%, which is also not a bad indicator for regression (Table 3).

The above results show that the average number of normal hours worked per week in the main job

Table 2 Characteristic

| Variable | Obs | Mean     | Std. Dev. | Min     | Max      |
|----------|-----|----------|-----------|---------|----------|
| geo      | 0   |          |           |         |          |
| year     | 87  | 2017     | .8212299  | 2016    | 2018     |
| id       | 87  | 15       | 8.415103  | 1       | 29       |
| mi       | 87  | 16406.18 | 10238.48  | 2448    | 39918    |
| hw       | 87  | 37.93448 | 2.464012  | 30.4    | 42.3     |
| te       | 87  | 27.82989 | 6.796119  | 14.1    | 38.5     |
| sp       | 87  | 67.32299 | 9.896907  | 43.4    | 84.1     |
| cr       | 87  | 9.916092 | 4.514135  | 2       | 25       |
| th       | 87  | 1215.075 | 890.5168  | 82.85   | 3951.31  |
| ge       | 87  | 9.637931 | 3.527178  | 5.1     | 20.3     |
| gw       | 87  | 7.94e+07 | 1.01e+08  | 1067319 | 4.06e+08 |

**Table 3** Analysis results

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. xtreg mi hw te sp cr th ge gw

Random-effects GLS regression              Number of obs   =       87
Group variable: id                       Number of groups =       29

R-sq:                                     Obs per group:
  within = 0.1957                          min =           3
  between = 0.8036                         avg =          3.0
  overall = 0.7975                          max =           3

Wald chi2(7) =       130.99
corr(u_i, X) = 0 (assumed)                 Prob > chi2     =       0.0000
    
```

| mi      | Coef.     | Std. Err.                         | z     | P> z  | [95% Conf. Interval] |           |
|---------|-----------|-----------------------------------|-------|-------|----------------------|-----------|
| hw      | -1267.441 | 424.1018                          | -2.99 | 0.003 | -2098.666            | -436.2172 |
| te      | 515.4321  | 117.9687                          | 4.37  | 0.000 | 284.2177             | 746.6465  |
| sp      | 284.5428  | 81.42432                          | 3.49  | 0.000 | 124.9541             | 444.1316  |
| cr      | -102.0489 | 110.169                           | -0.93 | 0.354 | -317.9762            | 113.8785  |
| th      | 1.654751  | .874141                           | 1.89  | 0.058 | -.0585337            | 3.368036  |
| ge      | 636.6591  | 251.2232                          | 2.53  | 0.011 | 144.2707             | 1129.048  |
| gw      | 2.97e-06  | 8.74e-06                          | 0.34  | 0.734 | -.0000142            | .0000201  |
| _cons   | 23614.76  | 19440.92                          | 1.21  | 0.224 | -14488.74            | 61718.26  |
| sigma_u | 4083.5004 |                                   |       |       |                      |           |
| sigma_e | 1115.4163 |                                   |       |       |                      |           |
| rho     | .93056841 | (fraction of variance due to u_i) |       |       |                      |           |

(hw) has a negative impact on income. That is, if the weekly working time is increased by 1 hour, income will decrease by 1267.44 euros per year. This statistics is characterized by the fact that the types of activities that require a lot of workload of time, refer to a greater extent to low-paying physical or monotonous work.

The indicator "Population by educational attainment level" has a positive value. That is, if, regardless of citizenship, gender and between the ages of 15 and 74, the percentage of people with higher education increases by 1%, the average salary will increase by 515,43 euros per year.

The analysis also showed that healthy people earn more. Thus, in comparison, in a country where 1% more people rated "Self-perceived health" as good and very good, wages are higher by 284,54 euros per year.

At the same time, the regression showed that the overall sense of security and the number of criminal incidents did not affect income. However, in the context of theft, there is a definite trend. Thus, in less than 95% of cases in countries where there is 1 more theft per 100,000 population, the income is higher by 1.65 euros per year.

After analyzing the environmental components, it was concluded that Generation of waste does not affect income. However, Greenhouse gas emissions have a positive effect. Thus, with an increase in Greenhouse gas emissions by 1 ton per capita, the average income will increase by 636.66 euros per year.

Thus, with 7 independent variables, 5 affect the average income in the country.

**5 Discussion and policy implication**

Today, it is not the number of hours worked, but the productivity of workers that affects wages.

This study shows that education has a direct impact on the economic security of both individuals and the country as a whole, which only confirms the results of the work of Brian Burnsed, Hemaïd Alsulami, Stephan Kampelmann, François Rycx, Yves Saks, Ilan Tojerow, Denise Hawkes, Mehmet Ugur and others. At the same time, you can see a large gap between the minimum and maximum percentage of the population with higher education (5–8 levels). That is why the state should take measures not only to improve the level of education, but also to support people's agitation for admission

to higher education institutions. If you look at education from the side of a product that needs to be sold. An increase in demand can be predicted in two ways. Improving the quality and accessibility of higher education. So, as an example of the first option, you can take countries such as the United States and United Kingdom. The universities of these countries take the first places in the world, the quality of education is at a height, so that even the high price of services does not interfere with collecting a complete set in groups. Likewise, grants and scholarships increase the availability of training. If we look specifically at Ukrainian universities. Then the smallest financial losses with an increase in availability can be realized by reducing the passing score on an external independent assessment.

Despite the first descriptive analysis by the Minimum Wage Commission (2016) above, the patterns between average income and working hours are quite different today. So, an increase in the norm of working time from the state is not required.

Healthy people earn more, the results show. This result can be assessed from three sides. 1. In countries with poor economies, living conditions are low, with India and Central Africa being a prime example. 2. Wealthy people can afford better medical services 3. Healthy people are more productive. Not only affordable treatment, but also giving up bad habits has a positive effect on health. Examples of the fight against the latter are clearly visible in the developed countries of Europe, where the state significantly increases taxes on the sale of alcoholic beverages and cigarettes.

The question of the impact of poverty on the number of crimes is controversial both in the writings of scholars and in this analysis. On the one

hand, the feeling of security and the overall number of attacks do not affect income. On the other hand, the more real cases of theft, the more income will be. However, the increase in theft may be the result of income inequality, which is smoothed out in this analysis.

Deteriorating ecosystems, along with climate change, pose an environmental threat to the mental and physical health of humankind. However, at the same time, as shown by the analysis, it increases income. At the moment, in developed countries, most of the emissions of greenhouse gases are accounted for not by industry, but by the generation of energy. So, if we develop the replacement of environmentally harmful energy with more loyal ones (solar, wind, etc.). That income can not only remain at the same level, but also increase, due to a decrease in the negative impact on health.

## 6 Conclusions

On the one hand, everyone understands the importance and necessity of ensuring financial security, and on the other hand, very many of its aspects are beyond a comprehensive systemic understanding and even more effective practical implementation.

It is the personality that is the most important and integral part of the process of ensuring the country's security, without a stable state of which the development of the country as a whole is impossible.

However, at the same time, a person's capabilities directly depend on external factors that can be influenced by the state. In particular, reforms to improve education, health, safety and the environment will have a positive impact on both the financial security of each person and the economy as a whole.

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