

# A1 Exam of Social Economics and Public Policy 2022

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**Time: 3 hours. Please handle in the questions sheet signed with your answers. In the last page there is a formula sheet. You don't need to use a calculator. Answers written in pencil are not subject to revision. The Exam has three main questions with different parts and choices, write only the number of items suggested. Please read and number your answers carefully. You may write your answers in Portuguese or in English.**

**Question I** - Evaluate if each sentence is True or False. **Don't need to justify your answers here.** Please answer 16 (and only 16) of the total 24 items below (A Total 56 points – 3.5 points for each selected item)

## Inequality

1. The Lorenz curve is a particular case of both the concentration curve and the generalized Lorenz curve.
2. The minimum possible levels of the Gini Index and the concentration ratio coincide.
3. Sources of mean income growth can be decomposed by income sources from changes in their respective concentration indexes.
4. Inequality of years of schooling is not only high but also has been rising in Brazil in the last 40 years.
5. Individual levels of years of schooling and Education of the parents are strictly related to inequality of circumstances in an inequality of opportunities framework.
6. The inequality index associated with the bottom 40% income (shared prosperity) is consistent with mean and inequality decomposition and also with the Pigou-Dalton principle of transfers.
7. Inequality of per capita household income tends to be lower than the one based on individual income for the same population.
8. In general, the imputation of top Incomes in household surveys tends to increase income inequality, its mean and social welfare levels.

## Poverty

9. The contribution of the indigenous population to aggregate poverty is higher than the one for the white population in Brazil.
10. The incorporation of economies of scale in poverty analysis tends to raise poverty measures in comparison to measures based on plain per capita household income.
11. Gender biases issues tends to appear more on individual earnings distribution than on per capita household income.

12. The Mean Poverty Gap ( $P^1$ ) captures basically the distance of the poor income with respect to the poverty line.
13. If the poverty line is raised the minimum cost of overcoming poverty rises more than proportionately.
14. The counterfactual of inequality changes in Datt-Ravalion Poverty Decompositions is obtained by comparing initial poverty levels with the one found in later period distribution divided by the growth factor.
15. Third order dominance implies that all poverty measures ( $P_0$ ,  $P_1$  and  $P_2$ ) for all poverty lines are always higher for one of the distributions involved.
16. One advantage of an Universal Basic Income scheme is to minimize the cost of overcoming poverty.

#### Social Targets, Polarization and Global Social Indicators issues

17. Poverty targets based on  $P^1$  (mean Poverty Gap) have difficulty in inducing actions aimed at the poorest in society.
18. One of the strong aspects of the Multidimensional Poverty Index (MPI) is the weight structure attributed to different indicators.
19. Relative economic classes segmentation that divides initially the society into equal sizes classes, has a greater explanatory power to total Brazilian inequality (using the Theil Index metric  $T_e / T$  contribution) than absolute economic classes segmentation using EGR (Esteban, Gradin and Ray) methodology.
20. A rise on mean life expectancy with its inequality kept constant affects both the Human Development Index (HDI) and the Inequality Adjusted Human Development Index (IHDI).
21. A system of targets based on international indicators such as SDGs (Sustainable Development Goals) allows to lengthen the planning horizons of policy makers and generate a common ground for actions between different levels of government.
22. A system where the greater the initial poverty the greater the social transfer from the federal government to a region leads to an increase in non-social spending.
23. In the presence of aggregate shocks one should use rankings of social indicators.
24. Subjective indicators derived from questions on perceptions are subject to cultural influences and the problem of adaptation across time at the individual level.

**Question II – Comment briefly the statesman below. Justify shortly your answers also using graphs or formulas, if possible.** Please answer 4 (and only 4) of the 7 items below (Total 24 points – 6 points for each selected item).

1. Falling unemployment rates, raising labor market participation rates and worked hours all contribute to rising mean labor earnings. So does raising hourly earnings. One can use this simple framework to also study earnings inequality trends.
2. The R-Square of a log-linear regression can be used to calculate the gross and the net contribution of a particular variable to overall inequality.
3. The use of interactive dummies in a regression framework allows to estimate difference in difference between treatment and control groups before and after an intervention.
4. A regression allows to isolate the partial correlations between the endogenous variable of interest and a set of explanatory variables. It is possible to capture non linearities such as increasing returns and externalities both in the household reference person years of schooling, for example.
5. The Gini index based social welfare function gives more weight to the poor. While a pure logarithmic income specification assume higher impacts at low income levels. Both approaches are not inconsistent with each other.
6. Total inequality movements are not always followed by polarization measures movements in the same direction.
7. The first Sustainable Development Goal (SDG) related to extreme poverty eradication (measured by the proportion of poor by 2030) presents pitfalls as a social target mechanism.

**Question III- Write a small essay on one (and only one) of the three topics below.** (Total 20 points – Overall exam is worth 104 points):

1. What are the main challenges to measure income inequality in Brazil?
2. What is your favorite poverty measure? Justify your answer comparing possible alternatives.
3. How to measure the progress of societies? Highlight the main desired features.

**Good Luck!**