
The Effect of Open Unemployment Rate, Education Level and Labor Force on Poverty in Indonesia 2018-2022

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Abstract:

The problem of poverty continues to be a concern in the developing world, including Indonesia. Several factors will affect poverty. Indonesia itself has not been successful in tackling poverty because in general the problem of poverty will continue to increase from time to time. Thus it is very important to conduct research on the circumstances that affect poverty. The purpose of conducting research is to determine the effect of the Open Unemployment Rate (TPT), Education Level, and Labor on Poverty in Indonesia in 2018-2022. This type of quantitative research uses panel data from 34 provinces with observations from 2018-2022 obtained from the BPS website. Tools used Eviews12 through multiple linear regression analysis techniques with the Common Effect Model (CEM). The study results explain that the Open Unemployment Rate has no effect on poverty, the level of education has a negative and insignificant effect on poverty and Labor has a significant negative effect on poverty. However, simultaneously the open unemployment rate, education level and labor force affect poverty. The Adjusted R-Square value is 39.0261% that the independent variables including the open unemployment rate, education level and labor can be explained in the poverty variable while the remaining 60.9739% is explained in variables not included in this study.

Keywords: *Open Unemployment Rate, Education Level, Labor Force, Poverty, CEM*

1. Introduction

Poverty is one of the main problems faced by economic development. The problem of poverty is common to all countries in both developing and developed countries. Compared to developing countries, the poverty rate in developed countries is not too high. Indonesia is also facing problems related to poverty. BPS (Central Bureau of Statistics) uses the theory of the ability to meet basic needs to measure poverty. In this approach, poverty is considered an economic inability to meet basic food and non-food needs as measured by expenditure. Living in poverty is not only caused by lack of money or low income, but also other factors such as unemployment rates, low education and health conditions. Indonesia is a developing country with a fairly high population that cannot be separated from the problem of poverty, the following data presents the percentage of the number of poor people.

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Table 1. Total percentage of poor people in Indonesia in 2018-2022

Sumber: Badan Pusat Statistik 2023

Based on the table above, it shows that the percentage of poor people experienced instability in 2020, experiencing a high increase of 9.985% due to the covid19 virus, but the poverty rate in Indonesia actively decreased to 9.555% from 2021 to 2022. The reason why the poverty rate in Indonesia is still high is because of the government's failure to overcome the problem of poverty in providing jobs, which has an impact on unemployment. According to (Wahyuningsih et al., 2020) The concepts of unemployment and poverty arise when a person or group of people are unable to achieve a level of economic welfare that is considered the minimum need for a certain standard of living. Unemployment and poverty in the real sense are understood as a state of lack of money or goods to ensure their survival.

Unemployment occurs because a country's economy as a whole is unable to provide jobs for all existing workers, and workers eventually become unemployed because they are not accepted. The creative and active role of the government is needed in this case to expand employment opportunities, in other words to create economic breakthroughs that can absorb labor. In theory, the poverty rate increases as the unemployment rate increases. In this case, when the unemployment rate increases, the poverty rate automatically increases as well. According to (Wang et al., 2019) Efforts to reduce unemployment and poverty are equally important, if people are not unemployed it means they have a job, an income, and are likely to be able to support themselves with that income. Poverty will not exist if the necessities of life are met. In several countries there is a positive relationship between poverty and unemployment, including Indonesia itself, as explained in research (Bieth, 2021) that unemployment has a positive but insignificant effect on poverty.

Given that unemployment affects poverty, it will also be related to the potential of human resources where this potential comes from education. Someone who has potential resources will bring provisions to the future. Education is one of the means to improve the quality of human resources. Education expands a person's knowledge, thus helping him learn skills that are useful in the world of work. In this way, education can be included as a development investment and the results can be achieved at a later date. As with the development of other sectors, education is one of

the main areas besides health and the economy. The existence of education is related to future investment related to research conducted by (Na, 2021) that the level of workplace and employee training has a significant positive impact on all forms of innovation. These results suggest that companies in emerging markets in Eastern Europe and Central Asia can encourage innovation by offering more vocational training programs and hiring a more educated workforce. According to (Halvarsson et al., 2018) In Indonesia, human development is synonymous with poverty alleviation. Since the most important asset of the poor is labor, investments in education and health make more sense for the poor than for the non-poor. Affordable access to education and health care facilities helps to increase people's productivity and ultimately increase their income.

In addition to the unemployment rate and education level, poverty is also influenced by labor. Poverty can be seen from various perspectives, one of which is employment. Basically, the purpose of getting a job is to generate income that can be used to fulfill life's needs. Therefore, the government continues to strive to increase the labor force participation rate (TPAK), because employment can be a source of poverty problems. The increasing number of people who are not active in the community contributes to the increase in the number of poor people. Increasing labor absorption as regional development capital is certainly one way to reduce the level of poverty that occurs. According to research (Bandiera et al., 2017) shows that the poor can take over the labor activities of the non-poor, but they face obstacles in doing so, and that interventions made to overcome these obstacles will result in sustainable poverty alleviation. the government must strive to expand employment opportunities so as to reduce poverty and the number of poor people in Indonesia, then the government's plan must be prioritized and given to development, both physical development and economic development. To reduce poverty and the number of poor people in Indonesia, especially people, as well as the growth of the national economy as a whole, absorption in various sectors of the economy can be significantly increased. Based on data obtained from the Central Bureau of Statistics, the problem of poverty in Indonesia is still quite high so that the author wants to conduct research aimed at analyzing the effect of open unemployment rates, education levels and labor on poverty in Indonesia in 2018-2022.

2. Theoretical Background

Poverty is a social phenomenon that still occurs in all developing countries, including Indonesia. Indonesia is one of the developing countries that faces the problem of poverty. Poverty is a classic, complex, and multifaceted problem that faces many challenges and will continue to be a challenge from time to time so that it is interrelated with the problem of unemployment. Findings from research (Renahy et al., 2018) explain that decades of research have accumulated a lot of evidence regarding the negative impact of unemployment on the impact of poverty and individual health. Research examining poverty-related impacts shows that the unemployed have a higher risk of experiencing poverty and material deprivation due to the loss of work-related income and benefits. Open unemployment remains a problem in the country. A large population means a large labor force. This means that there are people looking for work and people who are unemployed. If a country is

unable to provide jobs for the unemployed, the number of unemployed will be very large. For example in research (Sari et al., 2023) In Lampung Province, the unemployment rate fluctuates, making it difficult for workers to find work, causing poverty and increasing the unemployment rate so that the open unemployment rate has a significant effect on poverty. One of the causes of the increasing unemployment rate in Indonesia is the large number of unskilled workers. These skills come from education, quality human resources obtained through quality education also support economic development, and education is the key to the future development of the country. Education, according to Law of the Republic of Indonesia No. 20/2003, is a conscious and planned effort to create an atmosphere and learning process for learners to actively develop themselves to reach their high potential. Citizens' right to a fair education and equal access to national education resources are critical components in promoting sustainable economic growth and poverty alleviation. Supported by research (Hofmarcher, 2021) It was found that the economic impact of education on poverty alleviation is quite significant. This applies not only to subjective measures of poverty, but also to several measures of absolute and relative poverty. Therefore, an additional year of education not only reduces the probability of being classified as living in poverty, but also reduces the probability of considering oneself living in poverty. Higher labor force participation and full-time employment, as well as improved health status, are potential mechanisms underlying these results. Eastern European countries in particular seem to be the driving force behind these effects. With a higher level of education one gains more knowledge and skills, which in turn increases employability. This is supported by research (Faharuddin & Endrawati, 2022) Production increases during good macroeconomic performance, which increases the ability of companies to pay higher wages. Globalization, industrialization, and technological advances increase economic efficiency and productivity. Correspondingly, the government can implement policies that improve the quality of the workforce through training and education, which in turn will increase labor productivity. To protect workers, the Indonesian government implements a minimum wage policy regardless of company compliance. Research into the effect of open unemployment rate, education level and labor on poverty in Indonesia is presented in the following framework.

Based on the formulation of the conceptual framework problem above, the hypothesis proposed in this study:

H1 : Open Unemployment Rate affects Poverty

H2 : Education Level affects Poverty

H3 : Labor has an effect on Poverty

H4 : Open Unemployment Rate, Education Level, and Labor have an effect on Poverty.

3. Methodology

This research uses a quantitative method with a descriptive approach that discusses the effect of the open unemployment rate, the level of education and labor on poverty. The type of data used is panel data for the five-year period 2018-2022 from 34 provinces in Indonesia. Data obtained from the Central Bureau of Statistics. The

samples taken are data on open unemployment rates, education levels, labor and poverty. The multiple linear regression analysis model used in this study was assisted by the EViews12 analysis tool. The multiple linear regression analysis model is obtained as follows:

$$\text{Log}Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + e$$

Dimana:

Log Y_i	: Poverty
β_0	: Intersep
X_{1i}	: Open Unemployment Rate (TPT)
X_{2i}	: Education Level
X_{3i}	: Labor
$\beta_1, \beta_2, \beta_3$: Regression coefficient
e_i	: Error term

The testing process starts from obtaining three estimation models in panel data regression modeling, namely the Random Effect Model (REM), Fixed Effect Model (FEM) and Common Effect Model (CEM) based on these models in the use of the Chow test, Hausman test and Langrange Multiplier (LM) test which test shows which model is better to use for testing this research. Furthermore, hypothesis testing is carried out using the t test which states individually the independent variables that affect the dependent variable, then the f test to measure simultaneously the independent variables that affect the dependent variable and the R2 test aims to predict how much the variables of open unemployment, education and labor levels on poverty.

4. Empirical Findings/Result

1. Model Selection Test

This test is necessary to determine which regression model is best in this test.

a. Chow test

In this test, it is determined which is the best model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM).

Tabel 3. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.922186	(33,133)	0.5932
Cross-section Chi-square	35.028297	33	0.3720

Based on this test, the probability is $0.3720 > 0.05$, which in the best chow test is the Common Effect Random (CEM) model.

b. Hausman Test

This test aims to determine the best model between the Fixed Effect Model (FEM) or the Random Effect model (REM).

Tabel 4. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.278958	3	0.9639

In table 4. shown in the probability of $0.9639 > 0.05$, thus the selected modeling is the Random Effect Model (REM).

c. Langrange Multiplier (LM) Test

In this test, the best model is determined between the Common Effect Model (CEM) or the Random Effect Model (REM).

Tabel 5. Uji LM

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.112298 (0.7375)	0.313152 (0.5758)	0.425450 (0.5142)
Honda	-0.335108 (0.6312)	-0.559600 (0.7121)	-0.632654 (0.7365)
King-Wu	-0.335108 (0.6312)	-0.559600 (0.7121)	-0.638669 (0.7385)
Standardized Honda	-0.044485 (0.5177)	-0.233853 (0.5925)	-5.105759 (1.0000)
Standardized King-Wu	-0.044485 (0.5177)	-0.233853 (0.5925)	-3.750817 (0.9999)
Gourieroux, et al.	--	--	0.000000 (1.0000)

The LM test results show that the Prob value is $0.7375 > 0.05$, therefore the Common Effect Model (CEM) is chosen.

2. Classical Assumption Test

a. Multicollinearity Test

Tabel 6. Multicollinearity Test Results

	X1	X2	X3
X1	1.000000	0.000514	-0.085420
X2	0.000514	1.000000	0.602791
X3	-0.085420	0.602791	1.000000

The conclusion from the multicollinearity test shows that the correlation coefficient of (X1) TPT and (X2) Education Level is $0.000514 < 0.80$, (X1) Open Unemployment Rate and (X3) Education Level is $-0.085420 < 0.80$, and X2 and X3 are $0.602791 < 0.80$. Thus it is concluded that it is free of multicollinearity or passes the multicollinearity test.

b. Heterodasticity Test

Tabel 7. Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.256819	11.51227	0.543491	0.5875
X1	-0.004952	0.012818	-0.386361	0.6997
X2	0.214771	0.224826	0.955278	0.3408
X3	-0.334426	0.238486	-1.402288	0.1627

Based on this test shows the probability value $X1, X2, \text{ and } X3 > 0.05$, it can be concluded that each independent variable does not experience symptoms of heteroscedasticity. Furthermore, it is analyzed using hypothesis testing including the t-statistic test, F-statistic test and the Dtermination coefficient test.

Based on the results of the panel data regression estimation using the Common Effect Model (CEM), the equation model is found, namely:

$$Y = 27.5619630855 - 0.00378228132118 * X1 + 0.11499705141 * X2 - 0.543902971796 * X3$$

It is explained that if X is considered constant, the dependent variable (Y) Poverty increases by 27.5619630855, if (X1) the Open Unemployment Rate decreases by 1 unit, Poverty will also decrease by 0.00378228132118, but if the level of education decreases by 1 unit Poverty increases by 0.11499705141, and if labor decreases by 1 unit, Poverty will increase by 0.543902971796.

In order to determine how much influence each variable of the open unemployment rate (TPT), education level, and labor force has on the poverty variable is as follows:

3. Hypothesis Test

a. Test t

Tabel 8. Results of the t-test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.310609	0.731536	9.993507	0.0000
LOG_X1	0.037743	0.060601	0.622800	0.5343
LOG_X2	-0.026268	0.231778	-0.113332	0.9099
LOG_X3	-1.362550	0.168876	-8.068337	0.0000

The results of the t test on the variable open unemployment rate (X1) obtained a t value of $0.622800 < t \text{ table } 1.974185$ and a sig value of $0.5343 > 0.05$, that H_0 accepts and H_a rejects, meaning that the variable open unemployment rate does not affect the Poverty variable in Indonesia.

While the results of the t test test on the variable Level of education (X2) obtained a t value of $0.113332 < t \text{ table of } 1.974185$ and a sig value of $0.9099 > 0.05$, that H_0 accepts and H_a rejects, which means that the variable Level of education (X2) does not affect the Poverty variable in Indonesia.

Then in the t test results for the Labor variable (X3) obtained a t value of $8.068337 > t$ table of 1.974185 and the sig value is $0.0000 < 0.05$, that H_0 rejects and H_a accepts, it is explained that the Labor factor has a significant positive effect on poverty in Indonesia.

b. Test f

Tabel 9. f Test Results

R-squared	0.401085
Adjusted R-squared	0.390261
S.E. of regression	0.440849
Sum squared resid	32.26179
Log likelihood	-99.95678
F-statistic	37.05597
Prob(F-statistic)	0.000000

In the F test results, the calculated f value is $37.05597 > f$ table of 2.659052 and the sig value is $0.000000 < 0.05$, that H_0 rejects and H_a accepts, which means that the Open Unemployment Rate, Education Level, and Labor affect Poverty in Indonesia.

c. R² test

Tabel 10. Test Results R²

R-squared	0.401085
Adjusted R-squared	0.390261
S.E. of regression	0.440849
Sum squared resid	32.26179
Log likelihood	-99.95678
F-statistic	37.05597
Prob(F-statistic)	0.000000

Adjusted R-square is 0.390261 or 39.0261%. The coefficient of determination above states that the independent variables including the Open Unemployment Rate, Education Level, and Labor can explain the Poverty variable in Indonesia by 39.0261%, then the remaining 60.9739% (100 - adjusted R-square value) is explained in variables not included in this study.

5. Discussion

The Effect of Open Unemployment Rate on Poverty in Indonesia in 2018-2022

In this case, based on regression analysis, the open unemployment rate does not affect poverty, with a coefficient value of 0.037743, meaning that an increase of every 1% unemployment rate is reported that the poverty rate will increase by 0.037743 percent. The findings of this study are not in line with the findings put forward by (Sari et al., 2023) entitled "Islamic Economic Perspective on Poverty Level: Determination of Economic Growth, Unemployment Rate, and Minimum Wage of Lampung Province" The results showed that the open unemployment rate affected the poverty rate in several districts / cities in Lampung Province. And also this research is not in line with research (Quy, 2016) which explains that the higher the poverty rate, the higher the unemployment rate. This study also contradicts research (Mardiyana & Ani, 2019)

explains that unemployment has a negative and significant effect on poverty. It is possible in this study, which uses data from 2018-2022, to find recent research that has nothing in common with previous research. The relationship between the Open Unemployment Rate (TPT) does not affect the poverty rate, this problem shows that people who are unemployed are not necessarily low-income people and unemployment is also not supported by those who have sufficient income. Furthermore, people who are temporarily unemployed are not poor.

The Effect of Education Level on Poverty in Indonesia in 2018-2022

Education is an investment in human resources that is at least as important as investment in fiscal capital in ensuring the long-term economic success of a country. Based on the results of the analysis, the variable level of education indicated by the last level of high school education has no effect on poverty in Indonesia. The coefficient value is -0.026268 which means that each poverty level decreases by -0.026268% as a result of a 1% increase in education level. This research is not in line with the research proposed by (Bici & Çela, 2017) Ultimately, we conclude that education is a factor that influences but also affects poverty. This research is also not in line with (Ginting et al., 2020) which education has a negative and significant effect on poverty. Research that is not in line with (Liu et al., 2023) states that it has a significant effect on China's efforts to end poverty through improving education. It is intended in this study that obtaining the latest research results allows the high school education level to have no effect on poverty. High school graduates want to continue their education to a higher level in order to pass on the investment provisions that will be brought to the future.

The Effect of Labor on Poverty in Indonesia in 2018-2022

Human potential is an employee with participation in production and development procedures who has an important task. The role of human potential in production and development procedures is shown as the quantity and quality of existing workers. Employees who are skilled, specialized and to increase productivity and national standard production, high skills are very important in the development process. Thus, the result of panel data regression of labor that leads to formal labor states that if the labor variable is negatively influential and significant in relation to poverty. The coefficient is -1.362550, if the labor decreases by 1%, the poverty rate increases by -1.362550 percent. Thus, it is necessary to increase the quality of human potential with education, guidance and adaptation to the aspects of activities and work opportunities that exist and will continue. This finding is in line with research (Torres, 2020) The results show that the income difference between formal and informal workers is between 37 and 44 percent, and if informality is between 37 and 44 percent, then the impact of formalization on poverty will be reduced by about 40 percent. However, while informality has great potential to reduce poverty, its impact on poverty reduction in Colombia in the years studied was low. The results of this study are also similar to those of the following studies (Faharuddin & Endrawati, 2022) that employment-related variables have a significant influence on the number of poor workers in Indonesia.

Simultaneous Effect of Open Unemployment Rate, Education Level and Labor Force on Poverty in Indonesia in 2018-2022

According to the conclusion of this study, these three variables are able to influence poverty. When the poverty rate increases along with the unemployment rate, while if the quality of education decreases, the poverty rate will increase and if the labor force decreases, the poverty rate will increase. In theory, there is always a relationship between the three variables consisting of the Open Unemployment Rate (TPT), the Education Level, and the Labor Force in relation to poverty. With this test, the significance of the three independent variables simultaneously affecting the relationship with poverty was obtained. With a calculated F value of $37.05597 > F$ table of 2.659052 and a sig value of $0.000000 < 0.05$, thus H_0 rejects and H_a accepts, meaning that poverty is simultaneously influenced by the Open Unemployment Rate (TPT), Education Level, and Labor. This study has similarities with research (Mardiyana & Ani, 2019) with the title "the effect of education and unemployment on poverty in the province of East Java in 2011-2016" which results in that the variables of education and unemployment have a positive and significant impact on poverty. They affect 96.6% of poverty, and other variables not included in this study affect 3.4%. The government should expand employment by providing training to those who are still unemployed so that they have the necessary skills to start their own business

6. Conclusions

Based on this, this research shows that the Open Unemployment Rate does not affect poverty. This situation occurs because the unemployed are not all poor, it could be that the unemployed are funded by people who have sufficient income. The level of education as measured by the level of high school education has a negative impact on poverty but is not significant, because some people still continue their studies to a higher level, so this does not affect poverty to increase. Because employment opportunities are narrow and human resource potential is said to be low, it is not unexpected that labor will have a negative and significant effect on poverty. But together these three factors affect poverty in Indonesia. The community must be able to synergize and strive to improve the quality of human resources even better. The government as a policy maker is expected to be able to implement policies related to problems that affect poverty. However, unemployment does not significantly affect poverty but unemployment is a social problem that needs to be watched out for. And also education is not always an influence in increasing poverty because good quality education will advance welfare and reduce poverty levels. The results of this analysis can further change the variables.

References:

- Bandiera, O., Burgess, R., Das, N., Gulesci, S., Rasul, I., & Sulaiman, M. (2017). Labor markets and poverty in village economies. *Quarterly Journal of Economics*, 132(2), 811–870. <https://doi.org/10.1093/qje/qjx003>
- Bici, R., & Çela, M. (2017). Education as An Important Dimension of the Poverty. *European Journal of Multidisciplinary Studies*, 4(3), 88. <https://doi.org/10.26417/ejms.v4i3.p88-95>

- Bieth, R. C. E. (2021). The Influence of Gross Domestic Product and Human Development Index on CO2Emissions. *IOP Conference Series: Earth and Environmental Science*, 1808(1), 95–108. <https://doi.org/10.1088/1742-6596/1808/1/012034>
- Faharuddin, F., & Endrawati, D. (2022). Determinants of working poverty in Indonesia. *Journal of Economics and Development*, 24(3), 230–246. <https://doi.org/10.1108/jed-09-2021-0151>
- Ginting, T. A. B., Sudibia, I. K., Dewi, N. P. M., & Marhaeni, A. A. I. N. (2020). The Effect of Education and Dependency Ratio on Economic Growth and Poverty in Papua. *American Journal of Humanities and Social Sciences Research*, 4(6), 186–195. www.ajhssr.com
- Halvarsson, D., Korpi, M., & Wennberg, K. (2018). Entrepreneurship and income inequality. *Journal of Economic Behavior and Organization*, 145, 275–293. <https://doi.org/10.1016/j.jebo.2017.11.003>
- Hofmarcher, T. (2021). The effect of education on poverty: A European perspective. *Economics of Education Review*, 83(June 2020), 102124. <https://doi.org/10.1016/j.econedurev.2021.102124>
- Liu, W., Li, J., & Zhao, R. (2023). The effects of rural education on poverty in China: a spatial econometric perspective. *Journal of the Asia Pacific Economy*, 28(1), 176–198. <https://doi.org/10.1080/13547860.2021.1877240>
- Mardiyana, L. O., & Ani, H. M. (2019). The effect of education and unemployment on poverty in East Java Province, 2011-2016. *IOP Conference Series: Earth and Environmental Science*, 243(1), 2011–2016. <https://doi.org/10.1088/1755-1315/243/1/012067>
- Na, K. (2021). The effect of on-the-job training and education level of employees on innovation in emerging markets. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 1–20. <https://doi.org/10.3390/joitmc7010047>
- Quy, N. H. (2016). Relationship between Economic Growth, Unemployment and Poverty: Analysis at Provincial Level in Vietnam. *International Journal of Economics and Finance*, 8(12), 113. <https://doi.org/10.5539/ijef.v8n12p113>
- Renahy, E., Mitchell, C., Molnar, A., Muntaner, C., Ng, E., Ali, F., & O'Campo, P. (2018). Connections between unemployment insurance, poverty and health: A systematic review. *European Journal of Public Health*, 28(2), 269–275. <https://doi.org/10.1093/eurpub/ckx235>
- Sari, I., Noviarita, H., & Devi, Y. (2023). *Islamic Economic Perspective on Poverty Level: Determination of Economic Growth , Unemployment Levels , and Minimum Wages in Lampung Province*. 9(9), 48–63.
- Torres, R. M. S. (2020). Poverty and labor informality in Colombia. *IZA Journal of Labor Policy*, 10(1), 1105–1129. <https://doi.org/10.2478/izajolp-2020-0006>
- Wahyuningsih, D., Yunaningsih, A., Priadana, M. S., Darma, D. C., & Purwadi, P. (2020). Why Are Unemployment and Poverty Still Happening in Borneo Island, Indonesia? *International Journal of Economics and Financial Issues*, 10(2), 235–241. <https://doi.org/10.32479/ijefi.9214>
- Wang, W., Phillips, P. C. B., & Su, L. (2019). The heterogeneous effects of the minimum wage on employment across states. *Economics Letters*, 174, 179–185. <https://doi.org/10.1016/j.econlet.2018.11.002>