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Unemployment Before–Amidst COVID-19: Shifts in the Predictive Factors of the Number of Weeks Spent Looking for Work

by

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Introduction

- Pandemic has caused the Philippine economy to spiral into a downfall: businesses closed, employees became jobless, and wages dropped (Asian Development Bank, 2020; Vasig & Sablan, 2020);
- Lockdown has caused many to transition into unemployment or underemployment (Lim, 2020);
- Highest unemployment in April 2020 with approximately 7.3 million Filipinos, nearly 5 million higher compared with the same quarter of 2019 while in July 2020, the unemployment rate reached 4.6 million Filipinos (PSA, 2020).

Introduction

- The high unemployment rate is stifling the country's economy, where household consumption is stagnant at 7.1% (Mapa, 2021) due to the effects of COVID-19 (Mapa, 2021; Camba & Camba Jr, 2020; Lim, 2020);
- Literature on the predictive factors of unemployment duration is still scarce;
- Increasing demand and struggling supply for work left many looking for jobs, averaging five months and that being a household head and age contributed to the length of time for employment search (Deluna and Berdos (2015).

Objectives

- Create more informed unemployment benefit policies that would ultimately improve employment, reduce unemployment, and shorten unemployment duration, stimulating economic activity.
- What changed in the factors that significantly influenced the number of weeks spent looking for work before (2019) and amidst the pandemic (2020);
- Predictiveness of the characteristics of the unemployed to the unemployment duration for both periods; and
- Construct a predictive model that determine the importance of the different features in predicting the unemployment duration.

Methodology

- Utilized Labor Force Survey data in the Philippines—focused on unemployed Filipinos (15 years old and above) during the four quarters of 2019 (pre-pandemic) and 2020 (pandemic);
- RStudio 1.4.1106, specifically, rfPermute to build the model and perform the hypothesis testing;
- compared the models' performances using Root Mean Squared Error and used a genetic algorithm that searched for the best discrete hyperparameters (number of trees, repetitions, and variables sampled) to optimize the models using a fitness function adopted from Viadinugroho (2021).

Results and Discussion

Table 1. Level of the Unemployment Duration (in weeks) before and amidst the Pandemic

Quarter	Mean	SD
2019		
January	4.92	7.74
April	4.63	5.10
July	4.18	5.08
October	5.46	9.38
2020		
January	4.62	8.06
April	5.53	6.23
July	4.58	6.47
October	7.04	1.00

Source: Philippines Labor Force Survey, Philippine Statistics Authority (PSA)

Results and Discussion

Table 2. Feature Importance and Significance of Prepandemic Model

Factors	Importance	p value
Age**	27.05	0.00990099
Currently Attending School**	14.34	0.00990099
Relationship to the Household Head*	4.32	0.04950495
Highest Grade Completed	4.31	0.18811881
Job Search Method	3.96	0.11881188
Marital Status	1.07	0.47524752
Graduate of technical/vocational course	0.44	0.62376238
Sex	0.17	0.57425743

Note. * $p < .05$ ** $p < .01$.

Source: Philippines Labor Force Survey, Philippine Statistics Authority (PSA)

Results and Discussion

Table 3. Feature Importance and Significance of Pandemic Model

Factors	Importance	p value
Age**	134.85	0.00990099
Highest Grade Completed	10.09	0.23762376
Job Search Method	9.55	0.14851485
Currently Attending School	5.73	0.18811881
Relationship to the Household Head	4.80	0.18811881
Sex	1.81	0.44554455
Marital Status	0.95	0.56435644
Graduate of technical/vocational course	0.52	0.44554455

Note. * $p < .05$ ** $p < .01$.

Source: Philippines Labor Force Survey, Philippine Statistics Authority (PSA)



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Conclusion and Recommendations

Results from the random forest regression models revealed that the predictive factors before the pandemic were age, schooling status, and relationship to the household head while during the pandemic, it shifted to only age;

Highlight how the pandemic catalyzed an ever increasing uncertainty



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Conclusion and Recommendations

Further research should explore if there is any change in how age affected unemployment duration before and after pandemic in the Philippines; and

Future research should explore the use of other models and with more recent data.



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Thank you very much!



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