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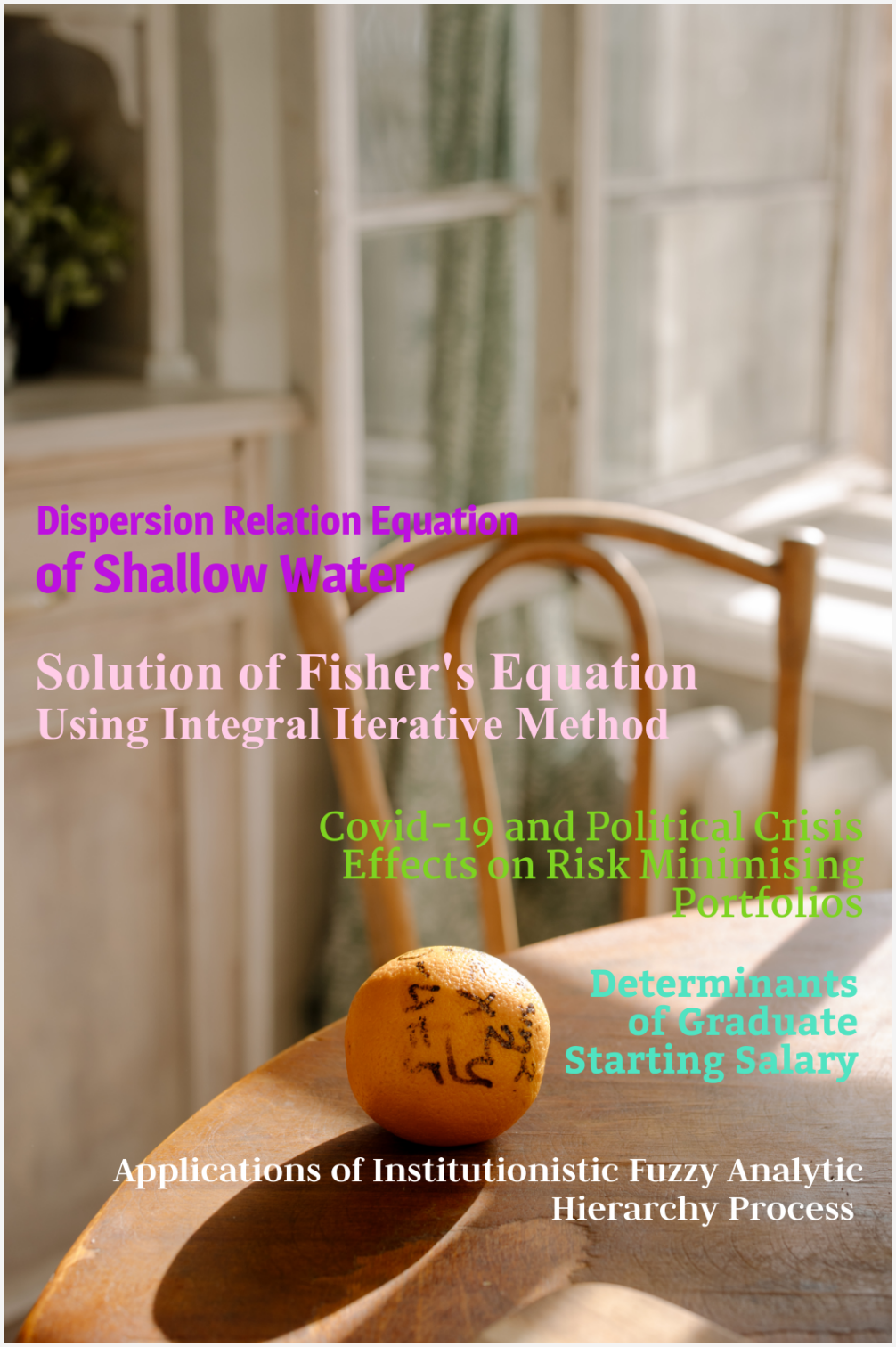

MATHEMATICS
IN APPLIED RESEARCH

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KOLEJ PENGAJIAN PENGKOMPUTERAN, INFORMATIK, DAN MEDIA, UITM CAWANGAN NEGERI SEMBILAN KAMPUS SEREMBAN
EDISI NOVEMBER 2022

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Al-Hamdulillah bersyukur kita ke hadrat Allah swt, dengan penerbitan edisi ketiga makalah Mathematics in Applied Research terbitan Kolej Pengajian Pengkomputeran, Informatik, dan Media UiTM kampus Seremban. Penerbitan ini merupakan satu usaha untuk menonjolkan hasil penyelidikan pelajar bersama pensyarah dalam Projek Tahun Akhir program ijazah sarjana muda di KPPIM Seremban.

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Disamping itu, pihak KPPIM Seremban mengharapkan makalah ini akan menjadi rujukan dan pemangkin kepada usaha menghasilkan penyelidikan Projek Tahun Akhir yang lebih bermutu tinggi. Makalah ini juga adalah batu asas kepada perkongsian penyelidikan terkini daripada pelajar dan pensyarah KPPIM Seremban.

Bagi pihak editorial, saya mengucakan Syabas dan tahniah kepada pasukan penerbitan yang berusaha keras untuk menghasilkan makalah Mathematics in Applied Research. Saya juga ingin mengambil kesempatan ini untuk menyampaikan ucapan terima kasih khas buat dua editor yang akan meninggalkan kita untuk bersara iaitu;

- Profesor Madya Dr. Nur Azlina Abd Aziz
- Dr. Nor Azni Shahari

semoga kecemerlangan perkhidmatan yang ditunjukkan oleh kedua editor-editor ini akan menjadi pendorong kepada editorial board yang seterusnya.

Sekian. Terima kasih.

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for all the dedications and

Happy Retirement

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DETERMINANTS OF GRADUATE STARTING SALARY: A CASE STUDY

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1. Introduction

In the era of growing technological convergence, the number of graduates produced by public and private universities is seen to be increasing. However, not all graduates are fortunate enough to secure a job or succeed in getting a job that matches with their qualification (Steed, 2018). In May 2019, Malaysia recorded unemployment rate of 3.3%, a marginal decrease compared to 3.4% that was recorded in previous month (Department of Statistics Malaysia, 2019). Nevertheless, this unemployment rate does not in depth information in particular the breakdown the unemployment by levels of education.

When graduates are offered a job, one of the important factor they will take into account is the salary offered. For graduates who are offered jobs in a giant or multinational companies, it is always presumed that the graduate will earn a high starting salary. However, no study can confirm this assumption. Salary in general known as a fixed payment that paid periodically for a person that engaged with work or service. This payment however scattered differently within each fresh graduate even though they are from the same background of the study.There is no clear evidence that well-established company will provide higher starting salary compared to less known company.

The latest report from Jobstore Salary Report 2018/2019 indicated that, a fresh graduate with an Honours' degree holder in 2018 could earn a salary of RM2,635. Meanwhile Bank Negara Malaysia (BNM) and Malaysian Employers Federation (MEF) found that starting salary for fresh graduates is RM2,169 and RM2,618 respectively. The salary level based on BNM is quite far away from the other two evaluators (MEF and Jobstore Group) as of the different side of view of each company.

As a consequence, to the above scenario, graduate monthly salary from the available data are regrouped into two categories which are (1) non-graduate salary and (2) graduate salary, namely as salary status. Using RM2500 as the cutting point, all the graduate with monthly salary of RM2500 and less, are categories as 'non-graduate salary' and who ever gain more than RM2500 are categories under 'graduate salary'.

Furthermore in identifying the determinant of graduates starting salary, four graduate characteristics namely gender, the field of study, Cumulative Grade Point Average (CGPA), and Malaysia University English Test (MUET) is used for this study.The interrelationship of graduate salary with characteristics of graduates would be investigated. In this study, the most significant variable that contributes to the graduate status of starting salary in one of the public universities in Malaysia will be examined. This study would be able to provide some knowledge and insights for the future undergraduate student to understand the factors that needs to be considered when securing job and earn an average starting salary that is at par with the level of education.

2. Methodology

This study only focuses on the employed graduate in 2018 from one of the public universities in Malaysia. A total of 1,485 employed graduates are analyzed. In identifying the most significant

variable that determined fresh graduate starting salary, there are hundreds of potential subgroups that can be assessed depending on the number of predictors. Chi-square Automatic Interaction Detector (CHAID) analysis can visually display relationship between variable by generating a tree diagrams to determine the best variable merge in explaining the dependent variable. It is easier to understand and interpret as it can analyzed all type of data without fulfilling normality assumption. CHAID analysis is the suitable tools in splitting the variables in multiway splits but prevents overfitting problem. The CHAID analysis produces a series of subgroup merges and splits. Subgroups with the most similar salary status are merged while the most dissimilar subgroups are split into separate nodes. A node is only split if a significance criterion is fulfilled by using chi Square test.

3. Results and Conclusion

In examining the graduate starting salary profile, a total of 1,485 employed fresh graduates had been selected for this study. Figure 1 shows the starting monthly salary of the graduate where 432 graduate had salary within RM1001 to RM1,500 followed by 346 graduates received RM2,501 to RM3,000 as their monthly salary. As this study mainly focuses to the salary status which is non-graduate salary and graduate salary, results shows that 40.4% of this fresh graduate gain graduate salary for their starting salary and the remaining 59.6% of the graduate gain non-graduate salary.

In identifying the characteristics that most contribute to the graduate salary, decision tree

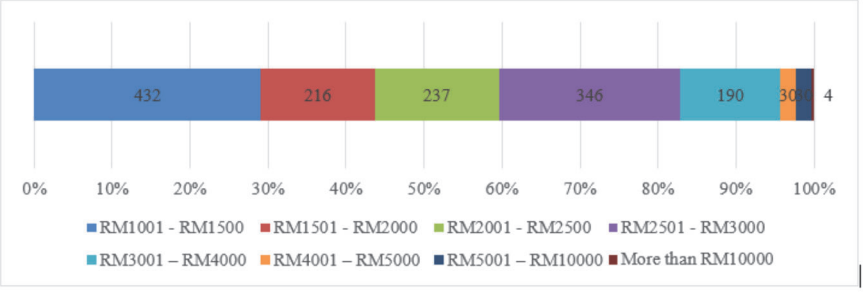

Figure 1: Distribution of Graduate Monthly Salary

analysis is done. Figure 2 show the decision tree diagram in classification the variables that contribute to the graduate salary status as starting salary. This complete analysis of decision tree produces 5 branches and 12 nodes where field of study, MUET, CGPA and gender were found to explain the graduate salary status. Field of study seen to be the most important parental characteristics for graduate salary status. The other contributing characteristics is the graduate CGPA, where the advantage goes more to the graduate with higher CGPA. It shows that if they are better in their academic performance, the higher chance of them getting graduate salary. Contradict to Literature & Social Sciences graduates where level of English proficiency (MUET) seem to be important than CGPA. In the contact of gender factor, it shows consistently with Francesconi and Parey (2018) study where male graduate had a higher chance in earns more pay (possibly graduate salary) than female

In conclusion, as the number of graduates is increasing every year in Malaysia. The mismatch of jobs offered to graduates with their level of education is an important issue that needs to be addressed. In human capital development, the necessary skill sets are important to meet the expectations of employers. Thus, the interrelationship of graduate salary with variables of graduates as the contributing factor must be deeply understood. Thus, this study provide an empirical evidence on the extent of the mismatch and the factors that are related to their starting pay. In short, this study is expected to be able to provide some insights to students as well as other stakeholder.

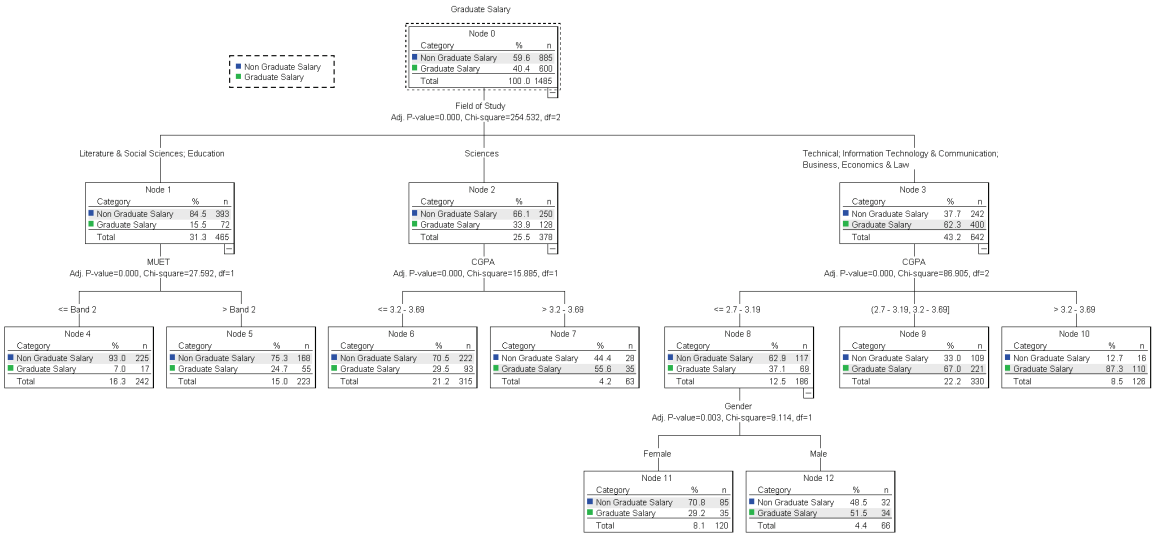

Figure 2: Classification Factor of Graduate Salary

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