

# 5 Conclusion

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The thesis is a set of three studies in labour or personnel economics. All three studies find some confirmatory evidence for the economic theories that were applied to analyse the data, however some unexpected results were also uncovered during this study. The unexpected results throw up new questions to be answered and this chapter is a tentative attempt to summarise the results found, both expected and unexpected, and explore what further investigations we may expect to conduct given what has been found.

In chapter two, where we tested one of the paramount predictions of Tournament Theory, that is that the employer would set wage differences between grades as a function of the size of uncertainty in tournament outcomes, and that wage differences and uncertainties are essentially co-determined, using the personnel record of a large British firm with more than 40,000 full-time employees over a period of 155 months. Our empirical results suggest that the risk-preferences of workers in different grades can be very different from one another. In the model, the productivity of workers determines promotion results. The productivity is however measured with an error and the distribution of this error is different across grades and gender. We first estimated a promotion logit where we use the estimates to create a measure that corresponds to the distribution of error terms by grades and

gender. We then estimate the case where the workers are assumed risk-neutral, so that the relationship between wage differences and error distribution is linear. We also estimated the case where the workers are not risk-neutral and the relationship between the two terms is non linear. It is the results from the second estimation which show that while workers in certain grades tend to be risk-averse, others are risk-loving. Our results show that if individuals are assumed risk-neutral when empirical analyses are performed, one runs a risk of excluding variables that are essential to the model thereby arriving at biased estimators as it is with our risk-neutral scenario estimations. The coefficient for the distribution of the disturbance terms,  $g(0)$ , is also smaller than the coefficient estimated under the non risk-neutral case where  $1/g(0)$  is not restricted to zero. In the non risk-neutral case, the coefficient for  $1/g(0)$  corresponds to the risk-averseness of the situation. The situation is risk-averse if the coefficient is positive, risk-loving if negative. Our results show that the coefficient for  $1/g(0)$  is positive when the estimation is performed using observations from grades 5 to 10, and the coefficient is negative when all observations are used.

There are three ways where one may interpret these findings. For instance, one may read the positive and negative coefficients as the average risk preference of workers. We may, for instance, argue that workers in grades 5 to 10 are risk-averse but everybody else is extremely risk loving which is why the sign of the  $1/g(0)$  coefficient is reversed when the same estimation is ran using all observations. An alternative way of understanding the coefficients is that this firm might find that its workers are being too risk-averse or risk-loving. The firm may set the pay structure so that workers are encouraged to compete for promotions in a more risk-loving or risk-averse manner than they would have been had the firm not encouraged them. For example if women have higher risk-averseness than men,

the employer might set the wage structure for grades where most employees are females so that the employees would behave and compete more like men and vice versa for grades that are mainly filled by male employees. Finally, the very different risk-preferences exhibited in various parts of the hierarchy show that the firm might be adopting risk-averseness as a kind of selection criteria; workers are allocated into different grades and sections of the company depending on their risk-preference.

Further developments on the tournament model are needed so that we may learn whether one or more of the three nominated scenarios are causing what we have observed regarding the coefficients for  $1/g(0)$ . First of all, there is a need for an analysis of the relative advantage of having a pool of competitors of mixed risk preferences competing and a pool of competitors with homogenous risk preferences. Another question raised in the chapter is the use of risk-neutral assumptions in the empirical literature. Economists working on topics that have policy implications as well as the policy makers should be interested in an investigation into how often the risk-neutrality assumption has been applied implicitly or ad hoc in the empirical literature. As it was mentioned in chapter 2, if the risk-neutrality assumption is incorrectly made, the policy implications one derives from empirical studies could be misleading or even downright incorrect.

Chapter 3 is the first empirical study that estimated the reduced form of Lazear and Rosen's 1990 model on rational discrimination in the context of a hierarchical organisation. The empirical evidence is again derived from the personnel record that was used in chapter 2. The empirical results presented can be split into two parts, the first part investigate the various predictions of L&R's model piece by piece and the second part examines the model as a whole in a reduced form estimation. The first part of the

empirical results compare the grade distribution, pay distribution, performance ratings, expected salary increases at promotions, and overtime work by gender. From overtime pay we find evidence that the female employees in the firm show signs that they are less committed to their jobs than the male employees. Women were less likely to inhabit high grades than men, they are paid lower salaries at almost all grades except for the highest, they are promoted faster and their performance ratings are higher. Some of the evidences conform to what is predicted by the model – higher performance ratings amongst women, fewer overtime hours worked by women. Other evidence does not conform to the most literal interpretation of the model’s predictions – female workers were not paid more, expected pay rise upon promotion were not higher for females. This evidence shows that it is easy to confirm or reject L&R’s model if only a piece of the model is being examined at a time. The use of a reduced-form estimation is justified because piece-meal examinations of evidence is not robust enough for interpreting datasets that are as complicated as the one used in the chapter. Predictions should be examined together rather than separately, and the model must be extended to accommodate for the time element in the data.

In the second half of the empirical work, we used a reduce-formed model to estimate the data in order examine the predictions of L&R’s model. As the key assumption of L&R’s model is that women are discriminated against because they are more likely to quit their jobs, we estimate the reduced-form model three times. First we used a gender dummy variable to account for the differences in treatment received by women and men in the firm. Then we used two measures of attachment indices, which measure how likely a worker would be to stay in this firm given his or her characteristics, in place of the gender dummy, in order to see whether the discrimination is closely related to exits. Several interesting findings have been revealed. We find that the firm does not overtly

discriminate against women in setting higher performance standards to reach in order to earn promotions, nor does it pay women differently. However, we also find that there is a stronger substitution of higher performance standard for shorter probation time for women than there is for men. We also find that the discrimination is not tied to the tendency to quit or leave but rather quite possibly due to fewer job offers coming from competing employers for female workers and other minorities, for example, disabled workers. Our results indicate that alternative employment is the more important factor in influencing quit and exit decisions for all workers than non labour market alternatives. This is especially so given that we have restricted our sample to cover only the personnel records of full-time employees.

The most astoundingly interesting results are that in the reduced-form regression where we used a gender dummy variable to test for gender discrimination, we find empirical results that conform to all the predictions made in the Lazear and Rosen model. What is intriguing, however, is that the results from the estimations where attachment indices are used in place of the gender dummy have refuted the central assumption of Lazear and Rosen's model regarding the higher exit and quit rates amongst female workers. In short, we have demonstrated how making a wrong assumption can nonetheless allow one to predict correctly. We have pointed out the kind of research we would like to see being conducted to further explore the issues that we have raised in the chapter and would therefore not repeat them at this point.

The study on Vice Chancellor (VC) pay and turnover find results that confirm the predictions of a number of areas in economic research. We surveyed the literature of human capital models, personnel economics, principal-agent theories, and corporate

governance to ascertain which variables should be included in the wage estimation of VC salaries. We have found that the information that is needed to rigorously test the predictions in the models, apart from human capital models, is not available. However we have still managed to find some interesting results that confirm human capital models or conform to some of the predictions in the other models. Most notably we have discovered that VC pay is linked to the performance of Research Assessment Exercises (RAE) but not to the teaching quality assessments (Qualitative Assurance Assessments, QAA for short) that are also administered by governmental bodies. We criticised the way QAA is administered and examined the many issues that may or may not affect VC salaries. We have also demonstrated that the turnover of VC is closely linked to both the university's performance in RAE as well as QAA. The fact that the ratio of highly paid academics working in an institute has positive effects on VC salaries show that tournaments for the VC post might be in place in some of the universities in UK.

The chapter shows that more research is needed in the study of the Vice Chancellor labour market. First, more information on the Board composition in Senates and Councils of universities is needed. Second it is necessary to call for more transparency concerning the non-monetary benefits that are being paid to Vice Chancellors. Currently the composition of Vice Chancellors salaries are presented in a most muddled way in a newspaper. Only the amount paid in each year is recorded, there are no details of the breakdown of pay composition. This is especially so for the observations where the contracts were either terminated or where the Vice Chancellors retired - the total reported amount paid is the sum of salaries plus the end of term payments that are nicknamed *Golden Parachute* or *Golden Handshake*, depending on whether the Vice Chancellor was fired or has actually completed his or her contract. For one to make any judgement about the effectiveness of

pay setting for VCs or to make deeper empirical investigations of VC pay, more data on university governance and Vice Chancellor pay composition has to be made available to researchers and to the public. With the limitations on data access that are currently in place, our empirical results are indicative of sound use of public funds on VC salaries and the firing and hiring decisions wisely made. However we have to say that the evidence is very far from being conclusive.