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## Who has a better chance of getting higher salaries among creative R&D employees?

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# Who has a better chance of getting higher salaries among creative R&D employees?

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## *Abstract*

It is a known fact from previous studies that on average, women earn less than men. Although the size of the gender pay gap differs from country to country, this statement is true almost everywhere. This brief study aims to contribute to the discussion on the gender pay gap by examining the earnings of a specific demographic – Estonian creative R&D employees. Not surprisingly, we discovered that gender is an important and statistically significant driver of salary levels with women being less likely than men to receive higher levels of salaries. In addition, we find that age is a further statistically significant determinant of salary levels. The effect of age on earnings forms an inverse-U-shape with younger and older employees having a lower likelihood of earning higher salaries compared to their middle-aged colleagues.

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## Kelle vahel on palgalõhed loomingulises T&A töös?

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### *Kokkuvõte*

Varasematest uurimustest on teada, et naised teenivad keskmiselt vähem palka kui mehed. Kuigi soolise palgalõhe suurus erineb riigiti, peab antud fakt pea igal pool paika. Eestis ulatub tunnikeskmise brutopalka erinevus meeste ja naiste vahel sõltuvalt kasutatud metoodikast viiendikust veerandini, olles sellega Euroopa Liidus esirinnas. Käesolev osa meie laiemast uurimisprojektist keskendub soolisele palgalõhele Eesti teadus- ja arendusvaldkonna töötajate seas – rakendusteadlased, toote- ja IT-arendajad ning insenerid. Meie 2015-2016 teostatud uuringuga on hõlmatud 153 T&A valdkonna loovtöötajat. Oodatult leiame, et soo seos brutokuupalgaga on tugev ning statistiliselt oluline. Naised saavad väiksema tõenäosusega kõrgemat palka ning suurema tõenäosusega madalamat palka. Vanusel on samuti palgatasemele oluline mõju. Nooremad ja vanemad teadus- ja arendusvaldkonna töötajad teenivad tõenäoliselt madalamat palka kui nende keskealised kolleegid ehk palga ja vanuse seos on nii-öelda kummuli-U-kujuline. Lihtsustatult võib seega nentida, et Eestis teaduse ja arenduse valdkonnas töötades võib end kõige kindlamalt tunda keskealine mees.

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# Who has a better chance of getting higher salaries among creative R&D employees?

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## Pay gaps come in many shapes and sizes

It is well-known that different demographic groups, on average, receive different salaries. Gender, age, race, ethnicity, and sexual orientation have been widely shown to be determinants of pay levels. Dissimilarities in characteristics like cognitive skills, personality traits, or beauty might also influence earnings and cause pay gaps. Academics have put considerable effort into studying these various gaps. The gender pay gap has perhaps received the most scrutiny, and it is also an important topic for discussion outside narrow academic circles. For example, Equal Pay Day is celebrated in many countries over the world to raise awareness of the gender pay gap, symbolising how far into the current year women must work to earn what men earned in the previous year.<sup>1</sup>

This research brief considers the gender pay gap as well. However, we investigate these gaps among a specific demographic: creative research and development (R&D) employees in Estonia. Overall, the gender pay gap is a significant problem in Estonia with women's gross hourly salary being 22% lower than men's according to Statistics Estonia.<sup>2</sup> Besides, researchers have been mostly unsuccessful in explaining this gap (Anspal, 2015). The study is part of a broader research project on the effects of working arrangements on work results, perceived health effects, and the wellbeing of creative R&D employees, conducted by our research group in the Department of Economics and Finance at Tallinn University of Technology in collaboration with our partners.

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<sup>1</sup> As the gender pay gap is different in each country, this date varies as well. In Estonia in 2017, an Equal Pay Week was celebrated during April 10-14.

<sup>2</sup> Data for 2015. Per Eurostat, the gender pay gap in Estonia in 2015 was 26.9% – the highest figure in the European Union. This figure is higher than the one provided by Statistics Estonia due to different methodologies (e.g. Eurostat only considers employees working in enterprises with 10 employees or more).

## **Possible explanations of the gender pay gap**

Studies exploring the gender pay gap aim to pinpoint the factors causing the gap. It has been generally found that motherhood is the primary driver of the gap with the earnings of mothers decreasing with each following child (Budig and England, 2001; Anderson, Binder, and Krause, 2002; Gangl and Ziefle, 2009). Compared to men and women without children, mothers lose out on work experience during prime career-building years as they need to take time off work due to pregnancy, childbirth and child caregiving. Understandably, this lowers earnings and reduces opportunities for promotion. Yet, it is curious that the “motherhood wage penalty” does not totally vanish when other observable attributes (e.g. years of experience) are controlled for.

In a stimulating investigation, Correll, Benard, and Paik (2007) conducted a laboratory experiment where participants had to assess the application documents of a pair of same-gender job candidates who had equal qualifications but differed in terms of parental status. It was revealed that men were not penalized (and were sometimes even favoured) for parenthood, while mothers were punished on several measures (e.g. proposed salary, perceived competence). Additionally, the researchers carried out an audit study of actual employers: as in the experiment, discrimination was only uncovered against the mothers and not against the fathers.

Beyond motherhood, the gender pay gap has been linked to women’s lower self-confidence (Palomino and Peyrache, 2010; Santos-Pinto, 2012), lower competitiveness (Kleinjans, 2009; Buser et al. 2014), and their poorer performance in competitive settings (Ors et al. 2013). In an intriguing study, van der Velde et al. (2015) examine the relationship between the gender sensitivity of a country’s primary spoken language and its gender pay gap, noting that countries with more gender-neutral languages are likely to have a smaller divide between the earnings of the sexes.<sup>3</sup>

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<sup>3</sup> It is interesting to note that Estonia has the largest gender pay gap in the European Union, while the Estonian language is gender neutral.

## **It's good to be a middle-aged man**

Our study investigates the effect of gender on the monthly gross salary level in a specific demographic: creative R&D employees in Estonia. Additionally, we look at the effects of age on earnings. The surveyed employees include academic as well as applied researchers, product developers, IT developers and other employees with creative R&D work tasks at banks, IT and technology companies and public as well as private R&D companies. All in all, the study sample contains 149 individuals from 11 entities.

We find that the association between gender and the monthly gross salary level is important and statistically significant. On average, women have a 13–15% lower probability of earning a monthly gross salary of 3 to 5 thousand euros<sup>4</sup> and 2 to 3 thousand euros. In the Estonian context, these are considered very high salaries. The results are opposite at the lower salary levels of below 2 thousand euros per month, with women having a higher probability of receiving these salaries compared to men. Also, we discover that age is a further statistically significant determinant of salary levels. The effect of age on earnings is inverse-U-shaped as both younger and older employees are less likely than their middle-aged colleagues to earn gross monthly salary levels above 2 thousand euros. Interestingly, this effect is stronger among men and at higher salary levels.

Consequently, it can be said that it is good to be a middle-aged man in Estonian R&D. A limitation of our study is that we disregard a third important individual characteristic besides gender and age: ethnicity. Ethnic minorities usually earn less than the ethnic majority (Carlsson and Rooth, 2016). This tends to be true for the large Russian-speaking minority in Estonia. For example, Leping and Toomet (2008) show that there is a significant pay gap between Russian and Estonian men that is robust to controls like language skills, education, industry and occupation.

## **Gender pay gap – should we care?**

This study attempts to provide a small contribution to the multifaceted and widely discussed topic of the gender pay gap by looking at a specific group of workers: creative R&D employees

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<sup>4</sup> This is the second-highest salary level in our survey. However, due to the small number of employees earning a monthly gross salary of more than 5 thousand euros we could not conduct the analysis on the highest salary level.

in Estonia. We discover that gender is an important and statistically significant determinant of the salary level with women having a lower probability of earning higher salaries compared to men and a higher probability of earning lower salaries. These results are in line with our expectations and agree with earlier findings both from Estonia and abroad: women, on average, earn less than men. The important question is: should we care?

Often, the gender pay gap is disregarded as a myth, as a considerable part of the total or “raw” pay gap can be “explained away” by controlling for different factors such as education or job characteristics. The portion of the total pay gap that can be explained by these factors is crucially dependent on the richness of the data set, and often researchers devote considerable effort to reducing the “unexplained” portion of the gap by including new and more detailed variables in their analyses. However, we should not disregard the raw gap as it indicates that, for whatever reason, an entire gender is worse-off regarding the remuneration for their time. Combatting the gender pay gap should thus incorporate both measures targeting discrimination as well as measures encouraging women, for example, to enter more high-paying occupations or to be more confident during salary negotiations.

This research brief is part of a broader research project, which may be interesting to the reader. We have studied the links between working time and work results, happiness, sleep patterns and sleepiness, emotional tiredness as well as the related gender, contractual and other aspects (see [www.ttu.ee/ta2](http://www.ttu.ee/ta2)). Moreover, the study is part of a larger effort of the research group to investigate the individual, institutional, financial and market driven aspects of development in R&D and knowledge intensive societies. We hope that these papers will be successful in facilitating discussion on these important development and welfare issues.

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