

MATHEMATICAL INSTITUTE

INTERNSHIP REPORT

STATISTICAL SCIENCE FOR THE LIFE AND BEHAVIOURAL SCIENCES

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# Duration of unemployment in The Netherlands

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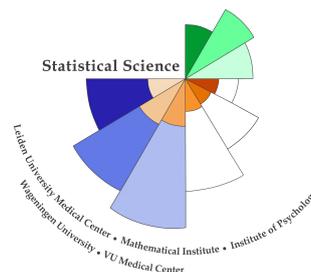
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**Universiteit  
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The Netherlands



# Internship Report

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## The Site

After having fulfilled the requirements, on February 15, 2016 I started my internship at *Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek – TNO* (English: *Netherlands Organization for Applied Scientific Research*). Specifically, I was assigned to the department of Leiden for a period of 2 months. I worked full-time and I had the pleasure to get an insight of how it is to be an employee in a big company. *TNO* is the largest and most successful research institute in The Netherlands with approximately 4000 employees and it is located all over the country and also abroad (Doha and Aruba). *TNO* conducts research in every possible field and collaborates with many companies, institutes, universities and the government as well. For the project of my internship, *TNO* collaborated with *Uitvoeringsinstituut Werknemersverzekeringen-UWV*. It is the Employee Insurance Agency in The Netherlands and is an autonomous administrative authority that is commissioned by the Ministry of Social Affairs and Employment to implement employee insurances and provide labor market and data services. I had been visiting and working at *UWV* offices in Amsterdam once a week, as well.

## The Project

My internship was part of a bigger project from *UWV* started in 2006. The main research aim is to build an instrument, which is called **Work Profiler** (*Werkverkenner*), in order to help unemployed people to return to work. This can be achieved by assessing the factors that have an effect on unemployment and based on that and the model that will be built, experts from *UWV* will provide advice and guidance to unemployed people in order to boost their chances of finding a job. Already, a first version of it is being used in practice (*Work Profiler 1.0*) and further work is being done in order to constantly improve it. Next version

is expected to be in action in 2017. My specific role was to identify the factors that affect the duration of unemployment. Until now the time was not taken into account and this is the very first analysis about it. Further details can be found on the report I made for this project. Under the supervision of Hedwig Hofstetter at TNO and professors dr.Elise Dusseldorp and dr.Marta Fiocco, I tried and achieved to get this study a step closer to its goal. By using a big dataset from *UWV* gathered for the purposes of this project, I tried several statistical techniques for survival analysis, based on *R* statistical software, before actually implemented the most appropriate for it and more precisely Cox Proportional Hazards model. I read many papers, articles and books in these particular areas and by receiving valuable advice and feedback from my supervisors I managed to advance my statistical knowledge and thinking, while I also strengthened my programming skills. Moreover, I learnt how to write a scientific report in a proper way and how to communicate statistical techniques and results to people that are not statistically trained. Another important skill that I gained from my internship was the time management. That is, I learnt how to work in a professional environment where I had to deliver certain tasks in a specified time-frame, receive feedback and consequently work on that. That implies working as a part of a team and understanding the way of thinking of the others. Furthermore, I gained valuable experience while I had to present my study results to the interested parties (*UWV*, *TNO*) at the end of my internship, which was my first actual ‘professional’ presentation outside the university class. Finally, I saw in practice how big companies operate and how their employees work and behave in their daily routine. It was a great place to gain industry breath exposure and depth. Worth mentioning that it was my first impression of how it is to work full-time in The Netherlands, which was also somewhat different from what I was familiar to in Greece.

## **Further skills acquired**

During my time at TNO, I participated in the statistical meetings that were taking place once a week, consisting of the 4 members of the statistical team of Leiden’s department. This was priceless for getting me to know how statisticians work in a company, in what projects they get involved and how important is to co-operate

with your colleagues in order to achieve your personal, as well as, the company's goals. At these meetings, each statistician was able to discuss his/her projects and ask for advice, while the rest were more than willing to help if it was necessary. By this interaction, everybody was getting useful feedback, minimizing the possibility of mistakes. Moreover, the level among statisticians is very high at TNO, consisting of experienced and highly educated personnel.

For the purposes of my internship project I had weekly status meetings in order to evaluate the progress that was being made and receive the necessary feedback from my first supervisor at TNO, Hedwig Hofstetter (MSc). Further than that, we had also 2 monthly meetings with the supervisors from the university, dr.Elise Dusseldorp and dr.Marta Fiocco, while we had a very good and effective communication by emails, as well. As it was mentioned earlier, once a week I had been working at *UWV* offices in Amsterdam in order to get a better insight of the project and what they actually wish to achieve with that. I had brief presentations about their work and how the instrument that is being used currently works and finally, what improvements they would like for the next version.

## Conclusion

As a conclusion, I could say that I am very glad and thankful that I had the opportunity to work for companies of the caliber of *TNO* and *UWV*, even for 2 months. I gained huge experience working in such big and highly valuable institutes, along with respected and highly educated people. It was also very useful to see how applied statisticians work and interact with each other in the real life. Finally, my supervisors were very kind and helpful all along that period, guiding me in every step in order to achieve the goal of my project and enhance my general knowledge of the field. I believe that after this internship I have developed my statistical, professional and organizational skills and it was very valuable for my future career in statistics.

**John Zavrakidis**

