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Increasing Income Inequality in Norway as a Consequence of a government Change?

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Abstract

Income inequality turns out to be one of the important topics towards the Norwegian election in 2021. This paper aims to investigate whether the income inequality has increased as a result of the change of government, from a left-wing to a right-wing government in 2013. This will be investigated by examining changes in the income gap between "Leaders" and "Other Occupations" in Norway. The focus will be on changes done to the tax policies by the right-wing Government. A Difference-in-Difference regression was conducted with "Income From Work", "Income From Capital", "Total Income" and "Total Income After Tax" as the dependent variables. The data is from four Living Conditions Surveys in the period from 2012 to 2016. The results show that the income gap between "Leaders" and "Other Occupations" has increased after the government change, but the results vary between the income variables. However, based on the short time period that was analyzed, it is not possible to say if this is a continuous trend. The results are also consistent with the hypothesis that the change of government has led to increased income inequality, but from our analysis it is not possible to claim this is actually due to the change of government or other factors.

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1 Table of contents

List of Figures

List of Tables

1. Introduction

In recent years inequality has been a widely discussed topic by politicians worldwide. Arguments have been presented to show why increasing income inequality is a trend which should be addressed and taken seriously. In 2015, the OECD Secretary-General stated *"We have reached a tipping point. Inequality can no longer be treated as an afterthought. We need to focus the debate on how the benefits of growth are distributed".* He continued by saying that OECD's reports have shown that there does not have to be a trade-off between growth and equality (Organisation For Economic & Development, 2015b).

In the past 30 years, the distribution of income has seen an increasing gap between the top and the bottom. In several of the OECD countries, the increased income has benefited the top more. Increasing inequality is correlated to more social differences in education, health, social mobility and exclusion. This is a trend that is likely to follow through generations, locking in barriers to equal opportunities (Organisation for Economic & Development, 2015a). There is a concern that those with the lowest income do not get a fair share of the economic growth, where a disproportional part of economic and political power falls on a few hands. Too much inequality leads to a weakening of confidence in both institutions and the democratic system (Dale-Olsen & Østbakken, 2016). Properly identifying the effects of the different policies allows governments to understand the tradeoffs between growth and inequality. Making the living standards better, while at the same time share more of the benefits and prosperity (Organisation for Economic & Development, 2015a).

In 2013, there was a change from a left-wing to a right-wing government in Norway. The government have the power to alter the redistribution effect through taxation- and social welfare policy. The left- and right wing have different opinions of how to lower the increasing income inequality (Stortinget, 2018), but both sides agree that it is a problem.

The main reason for increasing income inequality is the increasing income shares to the rich, while the effect is also somewhat enforced from the increase of people in lower-income groups (Aaberge & Modalsli, 2014). The left side wants to lower inequality with more direct policies, and has that as a high priority. The right-side focus on economic growth and believes this indirect approach will eventually be more beneficial for most people (Stortinget,

2018). Because political parties have different policies regarding income inequality, there is reason to believe that a change in government will affect the income inequality. By changing taxes, it is possible for the government to change both the progressivity and the redistribution of the tax system.

To test whether the income inequality has increased after the government change, the paper will have "Leaders" as a focus group and compare it to "Other Occupations" with regards to changes in the income gap. "Leaders" is a pooled group consisting of managers, executives, politicians and other forms of leader roles. "Other Occupations" is a pooled group of all other occupations. A difference-in-difference analysis will be conducted to answer the research question. The research question is:

Comparing leaders to other occupations in Norway, has the income gap between the groups increased after 2013? Is it mainly due to the government change, and has this led to an increased income inequality?

This paper will try to answer the research question by focusing on the tax changes done by the right-wing government after 2013. This is an important tool for the government and will most likely be affected by a change in government.

This paper will consist of eight more chapters. The background will define some concepts that are frequently used in this paper and give a brief summary of Norway's history and current situation with regard to tax policies and income inequality. This will make it easier to understand policy tools affecting income inequality. In the Theory part, an economic theory of how government changes to taxes can influence the progressivity of the tax system will be presented. Previous literature on taxes, income inequality and compensation for leaders will be presented in the Literature review. In the Method and Data chapters, the relevant data will be presented and the method explained, as well as weaknesses in the data and analysis. The results of a descriptive- and a regression analysis will be presented in the Results chapter. In Discussion, the aim is to study the research question in conjunction with the results, theory, previous literature and background. Finally, the conclusion will try to answer the research question and suggest further research.

2 Background

The background will first clarify some definitions of concepts that are frequently used, and then look at Norway's history regarding income inequality until 2016. It will also include how policies and taxes have affected the income inequality. Hopefully, this can be transferred to similar situations that will come in use when discussing the research question.

Inequality is a broad term, and has different interpretations depending on in which context it is used. There is not an individual inequality measurement that is the "most correct" (Andersen & Aaberge, 1983). Because of the many dimensions, income inequality being one of them, it is difficult to measure inequality as a whole. The definition used for income inequality in this thesis is "*the difference in how income is distributed among individuals and/or populations*" (OECD, 2019).

Income inequality has increased steadily over the past 20 years, and politics have an important role in affecting this. Inequality in the distribution of wealth is larger than in the distribution of income. Increased top income shares is a result of increased capital income in the last 20-30 years (Geier & Grini, 2018) (Aaberge & Stubhaug, 2018) The return of capital has been larger than wage growth. This is because wealth grows exponentially, and since a large share of wealth is concentrated at the top of the wealth distribution, it increases inequality (Aaberge & Stubhaug, 2018). Inequality movements are driven by episodic shifts in six basic forces: politics, demography, education policy, trade competition, finance, and labor- saving technological change (Modalsli, Aaberge, & Atkinson, 2016). Income inequality can be measured by looking at income from work and income from wealth (Geier & Grini, 2018; Omholt, 2018)

The variable of interest in this paper is income, which is defined as *"money that is earned from doing work or received from investments* (Cambridge Advanced Learner's Dictionary & Thesaurus).

One of the key measurements frequently used when measuring income inequality, is the Gini-coefficient. This measures the allocation of income or wealth. With a value of zero, all

income or wealth is shared equally amongst the population, and if the value is one, all income or wealth falls to one person. However, the Gini coefficient says nothing about the reason why the economic differences may have increased (Aaberge, Langørgen, & Lindgren, 2013). That is why a historical perspective will be useful to explain how taxes have affected income inequality.

2.1 History of tax changes, policies and income inequality in Norway

During the World War I, the inequality increased, but fell during the Second World War due to a decrease in upper income group as well as a decline in the gap of the mean income between the upper and lower half of the population (Modalsli et al., 2016). From mid- 1900, Norway had a progressive taxation system. The marginal tax on income in Norway could reach up to 80 percent (Isachsen, 2014). Despite the high marginal taxes, the redistribution effect was small, the reason was favorable deduction rules that allowed the rich and the corporations to become zero taxpayers through interest deduction (Christensen, 2018). Later, Norway made a shift away from high progressive taxes, as the cost of considerable redistribution and following economic inefficiency was perceived to be too high (Røed & Strøm, 2002).

Figure 2.1 shows a high level of income inequality from 1875 and until the beginning of the Second World War in 1939. Then it declines until around 1980. From 1980 and until 2015, it has increased steadily with some exceptions. After 2015, it has continued to increase.

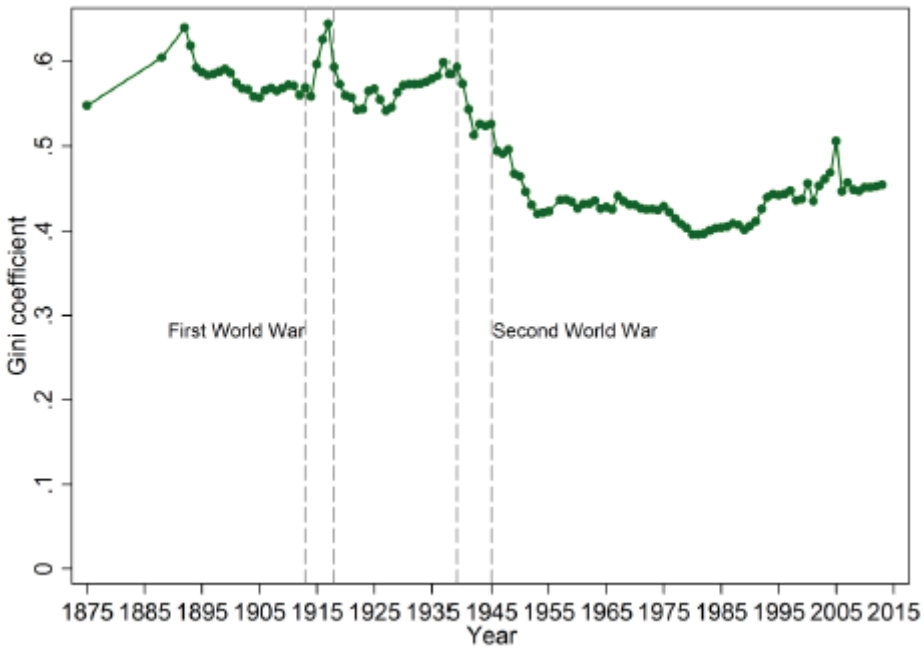

Figure 2.1: The change of income inequality in Norway from 1875 to 2015 illustrated by the Gini-coefficient (Modalsli et al., 2016).

In the mid-80s there was a liberalization of the capital markets (Aaberge & Atkinson, 2008) and the Norwegian economy was still in an expansion because of Oil and Gas industry. This was a turning point, where the income inequality started to increase again. The liberalization increased access to capital. With unlimited interest deductions, it contributed to a crisis situation where there was uncontrolled growth of consumption and debt (Christensen, 2018).

Problems regarding the deductions in the old tax system led to the next two tax reforms in 1987 and 1992. The goal of the tax reforms was to provide a more redistributive and fair tax system, as well as more efficient use of resources. In the tax reform in 1987, politicians agreed on a gradual reduction of interest deductions and the high tax rates. The tax reform in 1992 introduced a dual tax system where a flat rate of 28 percent on capital income was combined with higher progressive rates on labor income (Christensen, 2018). This increased the incentives to realize dividends and capital income, which caused a rise in the top income shares (Modalsli et al., 2016). The marginal tax rates on high income levels were reduced and the bottom deductions were increased.

In the period 1998 to 2004, wage growth for leaders in the listed companies was three times greater than the general wage growth in the industry. A significant part of this increase was due to the introduction of share options. It was primarily the large enterprises and the listed companies that stood out in terms of leader salary levels and development (Randøy & Skalpe, 2007b).

The tax reform in 2006 introduced tax on dividends, so it was profitable for the shareholder to realize them beforehand. The fall in inequality the years after corresponds to this as can be seen in figure 2.1. The distributional response to the reform in 2006 brought top income shares and inequality down to levels not seen since the early twentieth century (Modalsli et al., 2016). The effects of tax on dividends and changes in surtax pulled in opposite directions, but since the changes in tax on dividends dominated, the total effect gave an increased redistribution on income. From 2006 until 2013 under the left-wing government, the redistribution was relatively stable and at a higher level than before the 2006 reform (Lian, Nesbakken, & Thoresen, 2013). Before the financial crisis in 2008, the tendency was a clear increase in income inequality, but even after the crisis, income inequality has increased.

Figure 2.2 shows an increase in inequality from 2014 to 2015. This can be explained by tax planning from the capital owners. A larger part of the dividends was realized in 2015 due to the anticipated tax hike in 2016. However, the tax planning gave a short-term effect and the inequality was at a normal level again the year after (Øverbye, 2017).

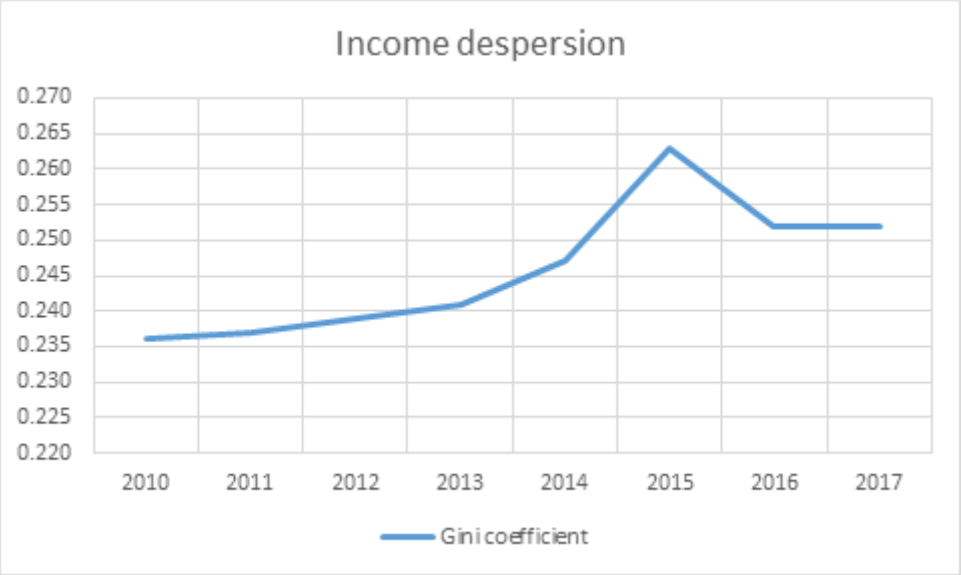

Figure 2.2: Gini coefficient, measuring income inequality in Norway 2010 to 2017 (Statistics Norway, 2018c).

Given the different views of the right- and left side, some policy changes were made after the election in 2013. To stimulate economic growth, the right-side presents arguments for easing the tax burden on companies and capital owners. Even if this should contribute to increased inequality, they argue that the overall growth will eventually be beneficial for most people. A focus on taxation policies with lower taxes to stimulate economic growth, has the potential backside increasing economic inequality. On the other hand, a very progressive taxation system could redistribute more, but has a backside of hurting economic efficiency and growth. The Norwegian taxation system will be used to explain why the trending income inequality can change after an election, with governments and different opinions on tax legislation.

2.2 Recommendations and Changes

The taxation system in Norway serves some key purposes. It is supposed to bring revenue to the state, help funding development of the country and supporting social welfare. It should be a fair and efficient system, and have a redistributive effect on the population, by evening out the economical differences between individuals. The principle of taxation after ability, means that the tax system should take the inhabitants´ ability to pay taxes into consideration. The

ability is usually based on income and wealth, and by using basic deductions and progressive bracket tax, a redistributive effect is present (Fallan, 2016).

The effects of wealth tax are similar to those of tax on capital, both taxes reduce the return of saving and can reduce the incentive to do so. The wealth tax works as a tax on the return potential of the wealth. The main difference being tax on capital income is dependent on annual realization of the object, while tax on wealth is activated independently whether the asset has been realized or produced return that year. The wealth tax creates a hindrance for tax planning and advantages tied to postponing the time of realization and can capture capital income which of different reasons are not taxed (NOU 2014: 13).

In 2013, a committee was appointed to revise the Norwegian tax system, especially the corporate tax, and make recommendations to changes which was handed to the Government in 2014. In the absence of inheritance tax, the role of the wealth tax as a redistributor have become important (NOU 2014: 13). The years following the election the basic deduction was increased rapidly, from 750 000 in 2012 to 1 400 000 in 2016 (See Table 1). The inheritance tax was removed, and the wealth tax was reduced from 1.1 to 0.85.

Table 2.1: Tax changes from 2011-2016 (Lovdata, 2010, 2011, 2012, 2013, 2014, 2015)

	2011	2012	2013	2014	2015	2016
Wealth Tax	1,1	1,1	1,1	1	0,85	0,85
Basic Deduction	700000	750000	870000	1000000	1200000	1400000
Tax on general income	28	28	28	27	27	25
Corporate tax	28	28	28	27	27	25
Inheritance Tax	Yes	Yes	Yes	No	No	No

The corporate tax was suggested to be reduced from 28 to 20 percent by the Scheel committee. A key argument for reducing the corporate tax was to increase investments in Norway, stimulating economic growth and make the companies more internationally competitive. (NOU 2014: 13). Tax on general income is a flat tax where all incomes are taxed the same rate, in addition, a surtax or bracket tax make up the progressivity of tax on income.

The committee recommended a reduction in tax on general income by 7 percentage points, and to move from the surtax to a bracket tax. They estimated the total effect from the reduction in tax on general income and move from surtax to bracket tax, would for most

people be 1 percentage point less in marginal income tax, contributing to increased income for most people and households. While individuals with lower income would have a bigger reduction in marginal tax, up to around 4 percentage points (NOU 2014: 13).

The government made the transition from a surtax to a bracket tax, with generally lower tax rates on the bracket tax than suggested in the by the Scheel committee, both for the neutral and tax cut scenario as shown in Table 2.2 (Lovdata, 2012, 2013, 2014, 2015). The tax on general income and corporate tax, was reduced from 28% to 25% in the period 2013 to 2016, as shown in table 2.1. The tax on capital income was effectively increased when the tax base of dividends were adjusted up by a factor of 1.15 (Lovdata, 2014, 2015; NOU 2014: 13).

Table 2.2: Actual changes in income tax and propositions from the Scheel Committee

	Changes made by the government		Propositions from the Scheel Committee	
	Surtax	Bracket tax	Proceeding neutral	Net tax cut scenario
	2015	2016		
Threshold 1	550550	159 800	140 000	140 000
Rate	9	0,44	2	2
Threshold 2	885600	224 900	206 000	219 000
Rate	12	1,7	6	5
Threshold 3		565 400	544 800	544 800
Rate		10,7	15	15
Threshold 4		909 500	885 600	
Rate		13,7	18	

(Lovdata, 2014, 2015; NOU 2014: 13)

3 Theory

The underlying expectation in this paper is that a change of government will affect the income inequality as a result of tax- and policy changes. In this chapter, theory about the progressivity of taxation will be used to explain why the income inequality can change after an election, with governments and different opinions on tax legislation.

In order to have a model for measuring the degree of progressive taxation, one has to understand the difference between the average tax rate and the marginal tax rate. "*The average rate is an indicator of the global volume of taxation"* and *"the marginal rate measures the increase in taxation on each extra unit of income, and is an indicator of the progressivity of taxes"*. When a taxation system has a degree of progressivity, the marginal tax rate is higher than the average tax rate. (Cahuc, Carcillo, & Zylberberg, 2014)

In the model, "w" is the real gross income received by the worker and w_e is the disposable income for the individual. T_e is the sum of taxes on income paid by the worker, both the direct and the indirect taxes minus received cash benefits. Income- and wealth tax are examples of direct taxes. Indirect taxes are included in commodity prices and not directly on income and wealth. Value-added taxes, excises and customs are examples of indirect taxes. There is no connection with the fact that those who pay most direct taxes also pay the most indirect taxes (Store norske leksikon, 2017).

The T_e function "*depend on many parameters including different tax brackets and the marginal tax rates that apply to each of them, thresholds that trigger tax relief, and ceilings on certain contributions"* (Cahuc et al., 2014). When a government changes the tax laws, the aim is to make the parameters work more effectively. This depends on the goal of course wether it is first and foremost economic growth or wether it is to reduce the income inequality. Equation 1) below shows how taxes affect disposable income (Cahuc et al., 2014).

$$1)\ we = w - Te(w)$$

Equation 1) shows how taxes effect the disposable income. A higher tax rate leads to a lower disposable income and the tax rate is decided by the government. The government can also choose how to distribute the taxes. If a tax is calculated at higher rates when the income increases, the tax is progressive. If a tax system is highly progressive, the redistribution effect will be larger and this will reduce the income inequality in a country. The progressivity of a tax system can be measured by pinpointing how much T_e varies when the income increases. By finding the elasticity of disposable income with respect to the real gross income, η_e of w_e with respect to w, it will be possible to measure the progressivity of a tax system and the effect on disposable income with a change in tax rates by a government. In equation 2), T'_e is the derivative of T_e with respect to w. The derivative shows the slope of T_e and represents the *marginal rates* of taxation of the worker. The average tax rate is represented as (T_e / w). Elasticity is used in order to measure the sensitivity of wage to a change in tax rate. Equation 2), the elasticity, is presented below (Cahuc et al., 2014). Elasticity is the measure of a variable's sensitivity to a change in another variable.

$$2)\ \eta_e = \frac{1 - T'_e}{1 - \frac{T_e}{(w)}}$$

The difference between (T_e / w) and T'_e characterizes the degree to which taxation is progressive or regressive. This can be understood by looking at η_e. The income tax is progressive if $\eta_e < 1$. The marginal tax rate will be higher than the average tax rate. Then an increase of 1% in the wage corresponds to an increase of less than 1 % in the disposable income of this wage. If $\eta_e = 1$, the income tax system is proportional, where $T'_e = (T_e / w)$ (Cahuc et al., 2014).

These two equation show that a change in tax on income can lead to a change in progressivity of the tax system and a change in disposable income. How progressive the tax system is thus influenced by the government's tax policy. Less progressivity could lead to a reduction of the redistributive effect of the tax system, and the income gap between a high- and low income will not change much before and after tax.

4 Literature review

Existing literature on this topic is substantial and this chapter will present some previous literature that is relevant for the research question. First, the effects of governments and taxation system will be presented. The second part will present some findings as to why leaders and its subcategories seem to have had a higher income growth.

4.1 Governments and Taxes

Piketty and Saez use data from surveys done by Forbes about annual CEO compensations from 1970 to 1999 and compare them to the average full-time worker from National Income Account. They find that an average CEO wage has increased faster than the average worker since the 1970s. They conclude that the tax reforms in USA in the 1980s, moving away from progressive taxation, is not the main reason for the increasing pay gap between CEOs and workers. It is rather the increase in top wages, which is partly explained by changes in social norms, where higher wages have become more acceptable in later years (Piketty & Saez, 2003). Using data from Anglo-Saxon countries over the period 1970 to 2000, Atkinson and Leigh uses regression analysis to find that reductions in tax rates explains somewhere between one-third to a half of the rise in income share for the richest percentile group (Atkinson & Leigh, 2013).

Siegloch simulate the income distribution post tax with the use of different tax policies. He uses this decomposition method to get the isolated effect of taxes on income inequality and top income distribution from the tax policies in the US in the period 1979 to 2007. He also investigates whether the increase in top income shares is marked driven or a result of the tax reforms during the time period. He estimates that 11-29% of the change in income inequality was a result of the taxation policy, 41% if behavioral responses are accounted for. The total effect in the period was positive for the top income share tax payers, but at the cost of the middleclass. Years with the Democratic Party ruling, the income shares of the bottom 80% increased, while when the Republican was in charge, the income inequality increased, especially favoring the top (Siegloch, 2013). One of the potential drawbacks of higher

marginal taxation is on the workforce. When each working hour is paid less, people work less or exit the workforce (Isachsen, 2014).

4.2 The Bonus culture for leaders

Following the corporate tax cuts in 2017 in the US, stock buybacks increased. Buybacks can increase the stock prices and inflate several of the compensation measurement for executives. This increase in compensation is not necessarily based on real improvements of changes to the business model, but rather more cash because of the cuts. Earnings per share (EPS) is an example, where buybacks will reduce the number of shares outstanding and increasing EPS (Reda, 2018). The buybacks immediately leads to a higher stock price for the remaining stocks, while real investments take longer time to affect the stock price, giving incentives for the stock buyback over investments (Isachsen, 2014). Bergstresser and Philippon finds that CEOs in companies where their compensation is largely influenced by company share price, shows more tendencies towards using methods to affect the performance measurements reported by the company, or earnings manipulation, which in turn boost their own compensation (Bergstresser & Philippon, 2006). Randøy and Skalpe look at data from listed companies on Oslo Stock Exchange and the introduction of stock-based rewards. Here they conclude that stock-based rewards are the main reason for the rapid increase in leader wages, also in Norway. Years with declining wages for leaders could be explained by a related downturn in the stock market (Randøy & Skalpe, 2007a). Performance measurements encourages managers to go for a short-term strategy, where they get positive effects on bonus-related measurements, even though a longer perspective could be the better alternative for the company (Melchior, Telle, & Wiig, 2000).

Randøy and Skalpe use accounting data from Brønnøysund (1998 to 2004) and data from all the companies listed on Oslo Stock Exchange in 2006 to analyze the income development of leaders. By limiting the sample to full time leaders in the accounting data, they find that the size of the company is the most important factor for leader income, while growth in the company's revenue is most important for the *increase* in income. Leaders in international exposed companies tend to have a higher income, while companies placed in rural areas generally had a negative effect on income (Randøy & Skalpe, 2007b). Older and more experienced leaders usually have a higher income, while solid ownership and seniority of the

chairman could reduce the income (Randøy & Skalpe, 2007a). Chhaochharia and Grinstein use a difference-in-difference approach to see the effect of governance regulations regarding executive compensation and the significance of these legislative shocks. Using data from companies in the S&P 1500 index from 2000 to 2005, results shows that policy requirement of a having a majority of independent directors deciding on compensation, have a significant negative effect on executive compensation. (Chhaochharia & Grinstein, 2009). Using data from the Norwegian tax returns in 1995 and 2005 Aaberge R., Atkinson A.B., and Königs S. finds that there is a clear association between top wage and capital income. Where the connection of labour and capital income increases in the period. Top wage earners, such as executives, are almost always high up in the capital income distribution (Aaberge, Atkinson, & Königs, 2018).

5 Method

Inequality is a broad term, and have different interpretations depending on in which context it is used. There is not an individual inequality measurement that is the "most correct". How to get the best answer will depend on the research question, method and the analysis design. Which concept of income to use, is dependent on the goal of the analysis (Andersen & Aaberge, 1983). From the previous chapters, there is reason to believe that leaders have experienced a higher wage growth than other occupations. To answer our research question, a difference-in difference robust regression analysis was used.

Before a regression analysis were performed, a descriptive analysis was conducted to see the trend in income between leaders and other professions. After running a Breush-Pegan test on the data, which was significant, the four regression models were performed as a robust regression with a difference- in difference (DID) method. This was to measure whether the government shift led to increased wage growth for leaders compared to other occupations. In DID, the data are used to assess the impact of an action or incident to estimate if there is a causal effect (Columbia University).

A large share of the Norwegian economy is affected by the oil price. As a part of a robust analysis, where the aim was to exclude other factors than a government change that can affect the income inequality, a subsample was made. This was to see if the oil price has led to the change in the income gap between leaders and other occupations rather than the change of government. To control for this, the counties Rogaland and Agder were excluded since they are the counties that were expected to be most sensitive to the oil price. All control variables were excluded from the sample to control that the results are not a consequence of demographic factors.

A regression equation was constructed to investigate the relationship between income and the variables of interest; occupation and time. The regression equation is tested four times with four different income variables. This is expected to give a more detailed result. The regression equation is also tested three times for each income variable. One for the sample consisting of "Norway", one for the subsample "Norway Without Agder And Rogaland" and one for the sample "Without Controls". To test whether δ_2 and δ_3 is statistically different from

zero, the standard error is found by using a regression analysis (Jakiela & Ozier, 2016). δ_1, δ_2 and δ_3 can be obtained by estimating the regression equation below.

Model 1-4:

$$\textit{Income variable} = \alpha + \beta_1 \textit{ Leaders} + \zeta_1 \textit{Year} + \delta_1 \textit{Leaders x 2013} + \delta_2 \textit{ Leaders x 2015} + \delta 3 \textit{ Leaders x 2016} + Z$$

Where Z is a matrix of socioeconomic and demographic controls; gender, age, education, relationship status and living area. δ_1, δ_2 and δ_3 are the coefficients of interest. These are the coefficients that will show if there has been an increasing income inequality after the Government change in 2013. The four income variables are "Income From Work" (1), "Income From Capital" (2), "Total Income" (3) and "Total Income After Tax" (4). Each income variable was tested with the sample, subsample and and the sample without controls; "Norway"(a), "Norway Without Rogaland And Agder" (b) and "Norway Without Controls" (c).

From the regression models, the hypothesis below were formed.

H1a: The income gap between "Leaders" and "Other Occupations" increases after 2013.

It is expected that the data will show that leaders have higher income than other occupations. Previous statistics have shown that they earn above average (Statistics Norway, 2018a). The interaction terms for leaders in 2015 and 2016 are expected to have an additional effect on all income variables. This is because previous research has found an increasing income inequality over time and as leaders are in the top of the income distribution, they will probably contribute to this (Statistics Norway, 2018c). It is therefore also expected that 2016 will have higher positive additional effect on Leader's income than 2015. This is because the right-wing politics has had more time to affect individuals` income, investments and wealth. However, other factors like the oil-price shock can have affected the income types negatively. As leaders are high-income occupations, one would expect model (2), "Income From Capital" to differ the most for leaders relative to the other occupations. This is because they likely earn more than they spend and have an opportunity to invest unlike some low-income occupations.

The null hypothesis for each regression; if the independent variables have no significant effect on the income, the null hypothesis cannot be rejected. The alternative hypothesis; if the independent variables have a significant effect, the null hypothesis will be rejected.

5.1 Weaknesses of the analysis

For the regression analysis to be unbiased and in order to generalize the results, some assumptions need to be satisfied (see Appendix E) (Wooldridge, 2014). Factors other than the government change can affect the income inequality, for example a change in oil price, technological improvements and the global economy in general. It is hard to isolate the effect of a government change in a regression analysis with income as the dependent variable. This can make it difficult to measure if the government change is the actual reason for a change in income inequality. As the change of government took place in the end of 2013, a period of only three years will make it difficult to see if there is a continued trend for the changes the new government makes to manifest itself. In addition, policies that the previous government implemented, may have lagged effects on the income variables after 2013. The analysis would be better with data from a longer time span. However, a long time period would also make it difficult to get a reliable result as more factors would affect the results. This makes income inequality hard to measure.

6 Data

6.1 Survey

The datasets that have been used to examine increased income inequality as a consequence of the change of government in 2013, is a cross-sectional data from the EU-SILC Survey of Living Conditions (Levekårsundersøkelsen). The survey has been conducted since 1973 and was carried out annually from 1996. In 2011, the survey was coordinated with the EU-Regulated Survey on Income and Living Conditions (EU-SILC). The datasets included in this thesis is from 2012, 2013, 2015 and 2016, and is conducted by Statistics Norway (SSB). These are based on subjective responses from individuals and households. The surveys consist of a representative sample of persons aged 16 and over in 2012, 2015 and 2016, and from age 18-66 in 2013. The survey was conducted in the first half of 2012 and 2015, and at the end of 2013/2016, beginning of 2014/2017 for the 2013 and 2016 surveys. In the 2013 and 2016 survey, people who by the end of 2013 and 2016 over 67 years were excluded. To retain the anonymity of the individuals, Statistics Norway has removed some of the information. Occupation and education are only delivered in two-digit codes. High values on individual variables, especially on income, are reduced, and values are rounded off. The dataset is provided by the Norwegian Social Science Data Service AS (NSD) (Revold & Holmøy, 2016 ; Thorsen & Revold, 2014; Vrålstad, Wiggen, & Thorsen, 2013; With, Revold, & Isungset, 2017).

6.2 Compositional differences

The share of "Leaders" represents around 10 percent of the total sample in all years tested. The gender distribution in 2012, 2013, 2015 and 2016 is evenly distributed among "Other Occupations" with minor changes. For "Leaders", there are more men represented, but it is expected that more leaders are men. There is some variation from one year to another year, but not very large. The share of "Leaders" having "High School Or More Education" is higher than for "Other Occupations", but there are only minor changes over time. More "Leaders" live in a "Densely Populated Area" and is "In A permanent Relationship", but the share is high for both samples. There are only minor changes in the age composition over time, but the mean of age for "Leaders" is a little bit higher than for "Other Occupations".

Table 6.1: Sample characteristics

			2012	2013	2015	2016
Leaders			9,1 %	9,7 %	11,6 %	10,7 %
Men.	***Leaders***		69,4 %	70,0 %	63,8 %	65,6 %
	Other Oc.		52,3 %	51,7 %	51,4 %	50,7 %
High school or	***Leaders***		48,8 %	52,2 %	51,0 %	55,1 %
more education.	***Other Oc.***		42,0 %	43,7 %	44,1 %	43,9 %
Densely	***Leaders***		85,6 %	83,9 %	84,1 %	88,0 %
populated area.	***Other Oc.***		78,7 %	79,1 %	79,7 %	81,4 %
In a Permanent	***Leaders***		80,6 %	82,8 %	78,5 %	75,2 %
relationship.	***Other Oc.***		73,1 %	74,3 %	71,2 %	71,3 %
Age.	***Leaders***	***Mean***	48,3	48,5	48,2	48,4
		Std. dev	9,85	9,67	9,79	9,72
	Other Oc.	***Mean***	46,3	46,5	46,8	46,2
		Std. dev	11,02	11,19	11,56	11,53

6.3 Variables

6.3.1 Income

The income information is collected from national registers and are from the same year as the living condition survey was conducted. "Income From Work" is defined as *"The sum of employee income and net income from self-employment earned during the calendar year. Cash for care and parental benefit are included"* (Statistics Norway, 2018d). To measure income from wealth, "Income From Capital" is used and defined as *"The sum of interest received, share dividends received, realized capital gains (or losses) and other property income received during the calendar year"* (Statistics Norway, 2018e). Two more income variables are tested for in the analysis. They combine both "Income From Work" and "Income From Capital" and is included to investigate the effect of tax changes. "Total Income", is the before-tax income variable and is defined *as "the sum of income from work, property income, taxable transfers and tax-free transfers received during the calendar year"*(Statistics Norway, 2018f). The after-tax income, is named "Total Income After Tax"

and is calculated as *"the sum of wages and salaries, income from self-employment, property income and transfers received minus total assessed taxes and negative transfers"* (Statistics Norway, 2018b).

The summary statistics of the four dependent income variables can be seen in table 6.2, 6.3, 6.4 and 6.5 below. For all Income variables for all years, "Leaders" have a higher average income than the "Other Occupations".

Table 6.2: Variable summary statistics of Income from Work

Area	*Year*	*Occupation*	*Obs.*	*Mean*	*St. Deviation*	*Min*	*Max*
Norway	***2012***	***Leaders***	340	642735	357006	-105000	1585000
		Other Oc.	3413	423167	281477	-405000	1585000
	2013	***Leaders***	366	691120	370605	-10000	1645000
		Other Oc.	3395	445856	280966	-195000	1645000
	2015	***Leaders***	447	690839	380283	0	1725000
		Other Oc.	3421	455497	300515	-305000	1725000
	2016	***Leaders***	448	740219	340693	-266000	1714000
		Other Oc.	3747	463647	311656	-176000	1714000
Norway without Rogaland and Agder	***2012***	***Leaders***	291	637234	355979	0	1585000
		Other Oc.	2920	420360	272817	-405000	1585000
	2013	***Leaders***	314	680175	363317	-10000	1645000
		Other Oc.	2888	439328	271306	-195000	1645000
	2015	***Leaders***	375	674573	361370	0	1725000
		Other Oc.	2900	450078	292474	-305000	1725000
	2016	***Leaders***	387	734021	331217	0	1714000
		Other Oc.	3211	456253	304177	-176000	1714000

Table 6.3: Variable summary statistics of Income from Capital

Area	*Year*	*Occupation*	*Obs.*	*Mean*	*St. Deviation*	*Min*	*Max*
Norway	***2012***	***Leaders***	340	20632	66936	-230000	287000
		Other Oc.	3413	10220	42496	-287000	287000
	2013	***Leaders***	366	26402	63245	-260000	260000
		Other Oc.	3395	11735	40398	-260000	260000
	2015	***Leaders***	447	51579	153945	-650000	702000
		Other Oc.	3421	17685	73947	-702000	702000
	2016	***Leaders***	448	37482	118354	-500000	505600
		Other Oc.	3747	18755	74074	-441800	505600
Norway without Rogaland and Agder	***2012***	***Leaders***	291	17845	63640	-230000	287000
		Other Oc.	2920	10038	41184	-287000	287000
	2013	***Leaders***	314	23815	60372	-260000	260000
		Other Oc.	2888	11256	39993	-260000	260000
	2015	***Leaders***	375	47256	154943	-650000	702000
		Other Oc.	2900	16768	72091	-702000	702000
	2016	***Leaders***	387	35308	118297	-500000	505600
		Other Oc.	3211	18058	72291	-441800	505600

Table 6.4: Variable summary statistics of Total Income

Area	*Year*	*Occupation*	*Obs.*	*Mean*	*St. Deviation*	*Min*	*Max*
Norway	***2012***	***Leaders***	340	685912	329147	-150000	1440000
		Other Oc.	3413	478655	253213	-405000	1440000
	2013	***Leaders***	366	737664	341496	0	1480000
		Other Oc.	3395	506835	256583	-715000	1480000
	2015	***Leaders***	447	786544	376392	-45000	1680000
		Other Oc.	3421	544217	279275	-1660000	1680000
	2016	***Leaders***	448	832076	372605	-225000	1830000
		Other Oc.	3747	563305	302071	-20000	1830000
Norway without Rogaland and Agder	***2012***	***Leaders***	291	679536	323985	-150000	1440000
		Other Oc.	2920	474558	246577	-405000	1440000
	2013	***Leaders***	314	726624	337786	0	1480000
		Other Oc.	2888	500078	248060	-715000	1480000
	2015	***Leaders***	375	769160	365303	-45000	1680000
		Other Oc.	2900	539966	268163	-315000	1680000
	2016	***Leaders***	387	825749	367197	10000	1830000
		Other Oc.	3211	556591	296068	-20000	1830000

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Table 6.5: Variable summary statistics of Total Income after Tax

Area	*Year*	*Occupation*	*Obs.*	*Mean*	*St. Deviation*	*Min*	*Max*
Norway	***2012***	***Leaders***	340	470838	195296	-150000	900000
		Other Oc.	3413	346313	154739	-405000	900000
	2013	***Leaders***	366	500765	199934	-15000	925000
		Other Oc.	3395	365950	155718	-775000	925000
	2015	***Leaders***	447	540078	222060	-150000	1035000
		Other Oc.	3421	394499	169974	-1035000	1035000
	2016	***Leaders***	448	569755	225962	-294000	1208000
		Other Oc.	3747	406942	187454	-48000	1208000
Norway without Rogaland and Agder	***2012***	***Leaders***	291	467921	193397	-150000	900000
		Other Oc.	2920	343692	151023	-405000	900000
	2013	***Leaders***	314	494682	199842	-15000	925000
		Other Oc.	2888	361785	151238	-775000	925000
	2015	***Leaders***	375	528693	217232	-150000	1035000
		Other Oc.	2900	392095	163353	-365000	1035000
	2016	***Leaders***	387	565034	220644	8000	1208000
		Other Oc.	3211	402833	183696	-48000	1208000

From the tables, the minimum income value of the population is often negative. For “Income From Work”, this comes from the net income from self-employment. For the “Income From Capital”, the negative values comes from realized capital losses. “Total Income” and “Total Income After Tax” includes both net income form self-employment and realized capital losses.

6.3.2 Occupation

The occupation variable consisted of a two-digit occupational code from the Standard Classification Standard STYRK- 08. The standard has a hierarchical division, from rough classification of occupational groups at 1-digit level into subdivisions of occupations at 2-digit level. In the analysis, the 1-digit level rough classification of occupational groups were

used, ranging from 1 to 9 (see Appendix A). The occupational group “Leaders” consist of administrative management work in both the public and private sectors, as well as all political paid work (Revold & Holmøy, 2016 ; Statistics Norway, 2011 ; Thorsen & Revold, 2014; Vrålstad et al., 2013; With et al., 2017). In the regression model, we made a dummy for “Leaders” and the base-group is all the other occupations, called “Other Occupations”.

6.3.3 Time

As the surveys that are analyzed were conducted in 2012, 2013, 2015 and 2016, dummy variables were constructed for 2013, 2015 and 2016. 2012 has been used as the base year of the analysis. The people in the surveys are different from year to year.

6.3.4 Demographic variables

All the variables explained in this section are used as control variables. “Age” is used as a continuous variable, ranging from 25 years to 67 years old. A dummy variable was made for gender, where men were coded into 1 and women into 0. Living area was also controlled for. If the participants lived in a “Densely Populated Area”, it was coded as “t” and “s” if they lived in a sparsely populated area (see Appendix B) (Revold & Holmøy, 2016 ; Thorsen & Revold, 2014; Vrålstad et al., 2013; With et al., 2017). A dummy variable was made where “t” was coded as 1 and “s” was coded as 0. In the survey, education is divided into 8 groups (see appendix B) (Statistics Norway, 2011). The education variable was constructed into two groups for the analysis, one that consisted of those that had lower education than finishing high school and the other consisted of those who had finished high school or more. One dummy variable was made called “High School Or More Education”. Relationship status was a categorical variable in the survey (see Appendix C), with 1= Married/ registered cohabitants, 2=cohabitants, 3= no. A dummy for “In A Permanent Relationship” was made by combining 1 and 2. The counties Agder and Rogaland were already combined in the dataset (see Appendix B), so it was not possible to only exclude Rogaland (Revold & Holmøy, 2016 ; Thorsen & Revold, 2014; Vrålstad et al., 2013; With et al., 2017). A dummy called “Agder and Rogaland” was made and used to control for the effect of oil price on the income inequality as already explained in the Chapter 5.

6.3.5 Preparation of the dataset

Students, retirees and those in military service were removed (see Appendix C). This was to remove most of those outside the workforce. In addition, those under 25 years old and over 67 years old were removed from the dataset. This limitation was done because between the ages of 25 to 67 most people are working and have had the opportunity to complete higher education. Also, those over 67 years were not in the 2013 and 2016 dataset to begin with. To see in detail what is done with the dataset, see the dofile (see Appendix D).

7 Results

7.1 Descriptive findings

In the following section, we will look at the descriptive analysis of the dependent variables. It is an illustration of the income variables from the dataset presented in the Data chapter (Tables 6.2, 6.3, 6.4 and 6.5). They are presented in a graphical way to make it easier to see the change in the income gap in the sample. The data on income is from 2012, 2013, 2015 and 2016. The two groups that are observed is "Leaders" and "Other Occupations". This will give some insight to where the changes in "Total Income" comes from, "Income From Work" or "Income From Capital". This can give an indication as to where potential policy changes have had an effect.

7.1.1 Income From Work

Comparing "Income From Work" for the two groups in *Fig 7.1,* the gap is increasing from 2012 to 2013. From 2013 to 2015 the income gap does not change noticeably, but from 2015 to 2016, the gap is increasing.

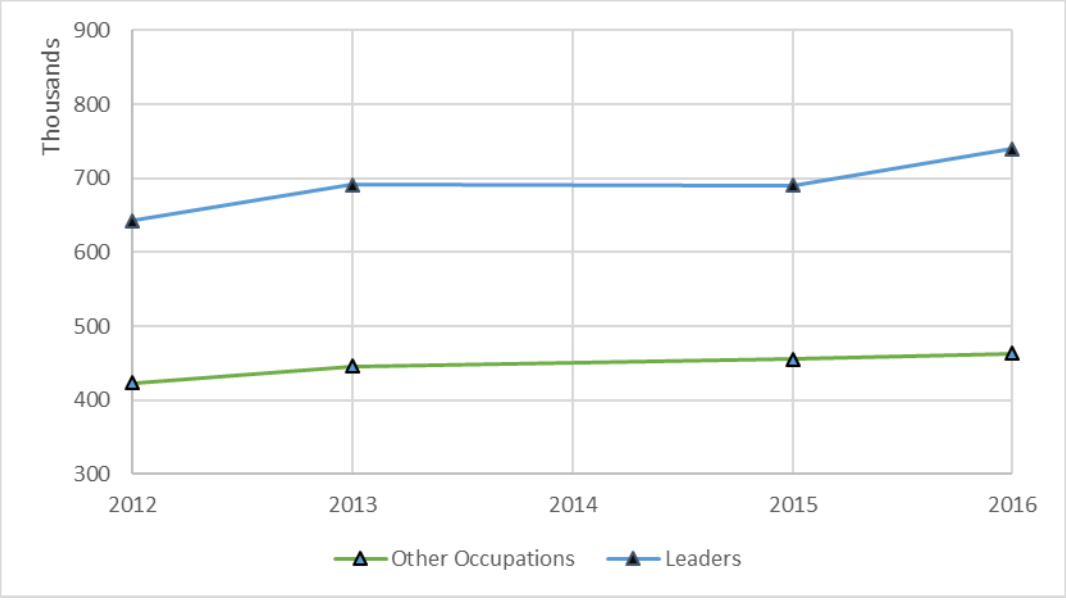

Figure 7.1: Average "Income From Work" for the groups "Leaders" and "Other Occupations". Years observed: 2012, 2013, 2015 and 2016

7.1.2 Income From Capital

Figure 7.2: There is a difference in "Income From Capital" between the two groups, with a considerable change from 2013 to 2015 where "Leaders" have had higher growth compared to "Other Occupations". In 2016, "Income From Capital" for "Leaders" decreases, but is still at a higher level than the "Other Occupations".

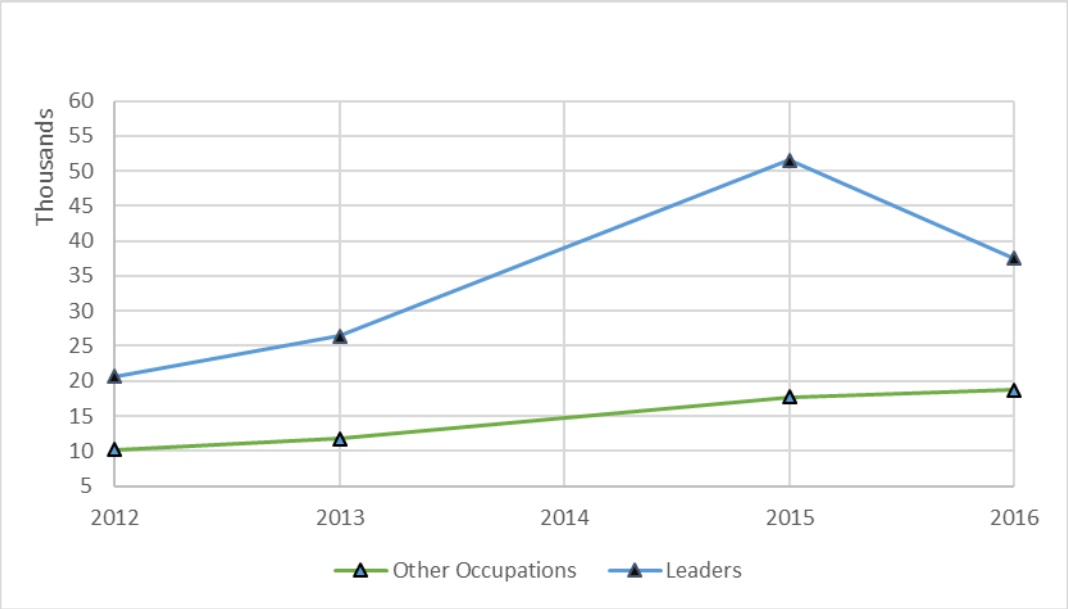

Figure 7.2: Average "Income From Capital" for the groups "Leaders" and "Other Occupations". Years observed: 2012, 2013, 2015 and 2016.

7.1.3 Total Income

Figure 7.3: "Total Income" has increased from 2012 to 2016 for both "Leaders" and "Other Occupations". While both groups see an increase in "Total Income", in 2016 "Leaders" have a higher income growth, which is explained by the underlying development seen in "Income From Work".

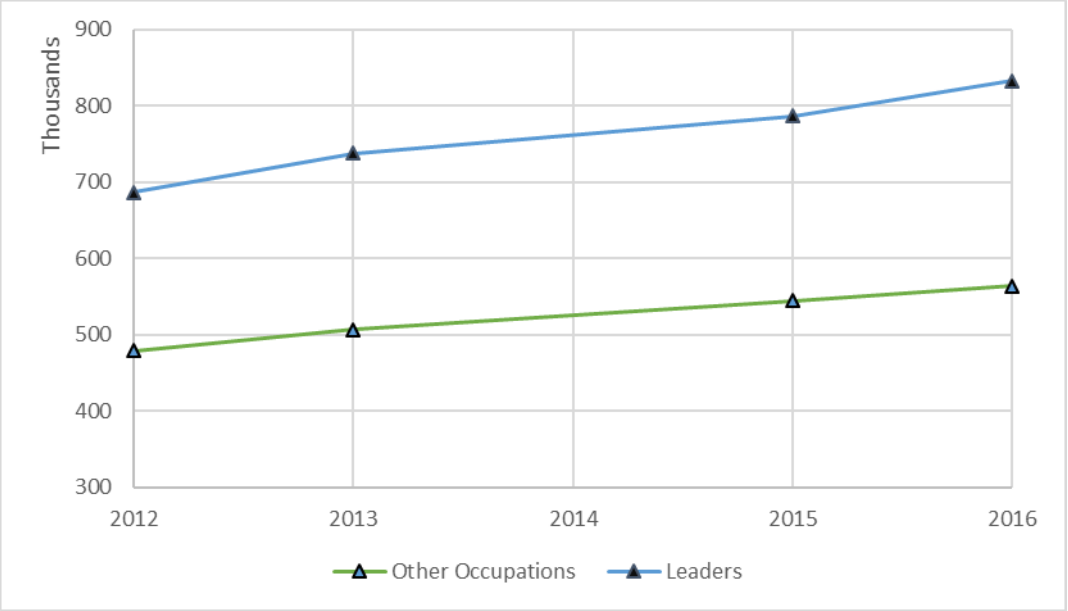

Figure 7.3: Average "Total Income" for the groups "Leaders" and "Other Occupations". Years observed: 2012, 2013, 2015 and 2016.

7.1.4 Total Income After Tax

Figure 7.4 "Total Income After Tax" has increased from 2012 to 2016 for both "Leaders" and "Other Occupations". The reduced difference compared to the one in "Total Income" is a result of the redistributive effect of the tax system. From 2015 to 2016, the income gap between "Leaders" and "Other Occupations" increases.

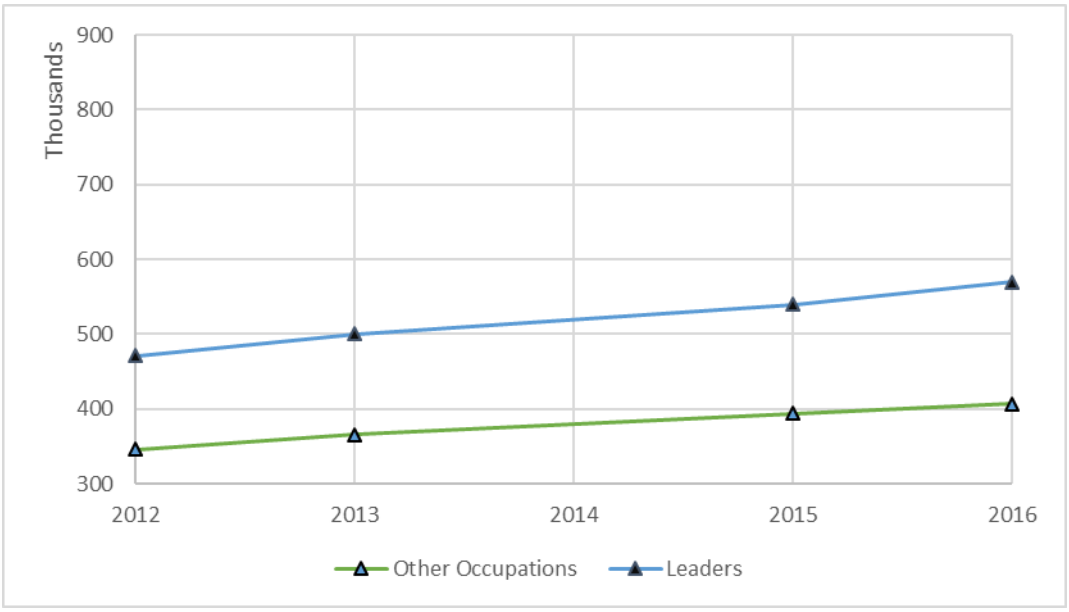

Figure 7.4: Average "Total Income After Tax" for the groups "Leaders" and "Other Occupations". Years observed: 2012, 2013, 2015 and 2016

7.2 Regression Analysis

The conducted regression models (see Appendix F for the regression outputs) below were disclosed in the Method and Data chapters. Based on these models, the purpose is to detect whether leaders have had a higher income growth than “Other Occupations” due to the Government change in 2013. This is done by looking at how “Income From Work”, “Income From Capital”, “Total Income” and “Total Income After Tax” changes over time for leaders compared to all “Other Occupations”. Each regression model is tested on the sample which is “Norway”, called a, the sample “Without Controls” named b and the subsample, “Without Rogaland and Agder” named c. The dataset contains the years 2012, 2013, 2015 and 2016.

7.2.1 Regression model 1

The estimated results for regression model 1 are shown below in Table 7.1. “Income From Work” is significantly higher for “Leaders Interacted With 2016” than for “Other Occupations” for all 1a, 1b, and 1c. All are significant at a 5 percent level. “Leaders interacted with 2013” and “Leaders interacted with 2015” is not significant in any of the subsamples. At a 1 percent level, “Leaders” have significantly higher “Income from work” than “Other Occupations”, for all 1a, 1b and 1c.

Table 7.1: Income from Work regression estimation results.

Regression model 1	***1a***	***1b***	***1c***
Leaders Interact With 2013	20 368	25 697	17 057
	(26 066)	(28 193)	(27 710)
Leaders Interact With 2015	26 783	15 774	13 993
	(25 237)	(27 322)	(26 586)
Leaders Interact With 2016	55 867**	57 004**	57 107**
	(24 274)	(26 110)	(25 675)
Leaders	165 486***	219 568***	166 744***
	(18 554)	(19 929)	(19 866)
2013	20 215***	22 688***	17 140***
	(6 115)	(6 817)	(6 434)
2015	31 799***	32 330***	29 999***
	(6 289)	(7 044)	(6 648)
2016	40 562***	40 479***	35 999***
	(6 286)	(7 011)	(6 643)
Male	190 919***		180 799***
	(4 388)		(4 636)
Age	-27		-82
	(195)		(206)
High Education	177 725***		175 431***
	(4 645)		(4 899)
Densely Populated Area	52 113***		47 778***
	(5 097)		(5 412)
Permanent Relationship	77 485***		72 530***
	(4 916)		(5 153)
R Square	0,2391	0,0613	0,2368
Observations	15 550	15 577	13 263

*, ** and *** represents a significance level of p<0.10, p<0.05 and p<0.01, respectively.

1a is the sample, 1b the sample without controls and 1c the subsample.

7.2.2 Regression model 2

The interaction terms show that if you were a leader in 2015 in Norway, you had a higher "Income From Capital" than "Other occupations". There were no significant values for "Leaders Interact With 2013" and "Leaders Interact With 2016".

Table 7.2: Income from Capital regression estimation results.

Regression model 2	***2a***	***2b***	***2c***
Leaders Interact With 2013	3 932	4 254	4 326
	(4 938)	(5 006)	(5 063)
Leaders Interact With 2015	24 503***	23 482***	23 632***
	(8 203)	(8 258)	(8 891)
Leaders Interact With 2016	8 149	8 314	9 256
	(6 748)	(6 808)	(7 149)
Leaders	5 997*	10 412***	3 117
	(3 639)	(3 698)	(3 728)
2013	1 301	1 515	1 021
	(996)	(1 005)	(1 055)
2015	7 198***	7 465***	6 509***
	(1 447)	(1 459)	(1 530)
2016	8 650***	8 535***	8 137***
	(1 395)	(1 412)	(1 466)
Male	12 443***		13 710***
	(1 060)		(1 123)
Age	599***		577***
	(45)		(48)
High Education	9 240***		10 055***
	(1 181)		(1 267)
Densely Populated Area	3 367***		3 199**
	(1 237)		(1 329)
Permanent Relationship	3 812***		3 910***
	(1 061)		(1 130)
R Square	0,0345	0,0142	0,0348
Observations	15 550	15 577	13 263

*, ** and *** represents a significance level of p<0.10, p<0.05 and p<0.01, respectively.

2a is the sample, 2b the sample without controls and 2c the subsample.

7.2.3 Regression model 3

The interaction terms show that if you were a leader in 2015 and 2016 in 3a, you had a higher "Total Income" than "Other Occupations" in Norway in average at a 10 and 5 percent significance level. In model 3b and 3c "Leaders Interact With 2015" is not significant, but "Leaders Interact With 2016" is significant at a 5 percent level for both. "Total Income" is significantly higher at 1 percent significance level for "Leaders" than for "Other Occupations". There is no significant values for "Leaders Interact With 2013".

Table 7.3: Total Income regressions estimation results.

Regression model 3	***3a***	***3b***	***3c***
Leaders Interact With 2013	18 709	23 572	15 758
	(23 915)	(25 961)	(25 295)
Leaders Interact With 2015	47 078*	35 070	32 974
	(23 968)	(25 997)	(25 271)
Leaders Interact With 2016	59 092**	61 514**	59 970**
	(24 022)	(25 892)	(25 336)
Leaders	152 484***	207 257***	152 450***
	(16 991)	(18 348)	(17 924)
2013	25 897***	28 180***	23 599***
	(5 569)	(6 179)	(5 879)
2015	63 611***	65 561***	64 070***
	(5 808)	(6 449)	(6 095)
2016	84 907***	84 650***	82 371***
	(5 918)	(6 568)	(6 268)
Male	181 463***		173 378***
	(4 149)		(4 379)
Age	2 661***		2 653***
	(183)		(195)
High Education	161 210***		159 676***
	(4 435)		(4 686)
Densely Populated Area	56 163***		52 317***
	(4 716)		(5 015)
Permanent Relationship	51 147***		497 967***
	(4 484)		(4 711)
R Square	0,2433	0,0767	0,2436
Observations	15 550	15 577	13 263

*, ** and *** represents a significance level of p<0.10, p<0.05 and p<0.01, respectively.

3a is the sample, 3b the sample without controls and 3c the subsample.

7.2.4 Regression model 4

The interaction terms show that if you were a leader in 2015 and 2016 in subsample 3a, you had a higher growth in "Total Income After Tax" than "Other Occupations". For regression model 4b and 4c, the growth were only significantly higher in 2016. None of the subsamples had significant values for "leaders interact with 2013". "Total Income After Tax" is significantly higher at a 1 percent significance level for "Leaders" than for "Other Occupations".

Table 7.4: Total Income after tax regressions estimation results.

Regression model 4	***4a***	***4b***	***4c***
Leaders Interact With 2013	7 381	10 289	5 248
	(14 226)	(15 331)	(15 204)
Leaders Interact With 2015	28 136**	21 054	17 525
	(14 299)	(15 411)	(15 178)
Leaders Interact With 2016	36 833**	38 287**	35 378**
	(14 568)	(15 559)	(15 344)
Leaders	92 894***	124 526***	93 974***
	(10 176)	(10 905)	(10 820)
2013	18 459***	19 637***	17 087***
	(3 423)	(3 763)	(3 631)
2015	47 169***	48 186***	47 741***
	(3 573)	(3 763)	(3 758)
2016	60 773***	60 629***	59 360***
	(3 679)	(4 049)	(3 899)
Male	107 688***		102 563***
	(2 552)		(2 698)
Age	1 260***		1 270***
	(114)		(121)
High Education	94 659***		93 994***
	(2 717)		(2 879)
Densely Populated Area	33 080***		30 901***
	(2 981)		(3 163)
Permanent Relationship	27 945***		27 364***
	(2 783)		(2 929)
R Square	0,2334	0,0801	0,2327
Observations	15 550	15 577	13 263

*, ** and *** represents a significance level of p<0.10, p<0.05 and p<0.01, respectively.

4a is the sample, 4b the sample without controls and 4c the subsample.

For all regression models, the null hypothesis "The income gap between "Leaders" and "Other Occupations" has not increased after 2013" can be rejected. It is the results that were presented in this chapter that will be discussed in the next chapter.

8 Discussion

Income inequality is increasing in Norway, and the the main reason is the difference between the top and the bottom of the income distribution, with increasing income shares to the top (Aaberge & Modalsli, 2014). Income inequality is affected by multiple factors, several of which the government have tools to affect. The focus in the discussion will be why the income gap has increased between "Leaders" and "Other Occupations", and if some of the changes to the tax system implemented by the right-wing government after 2012 have effected this.

In figure 7.1 from the descriptive analysis on "Income From Work", the income growth of "Leaders" and "Other Occupations" is similar from 2012 to 2015. In 2016, the figure shows that "Leaders" have experienced a higher growth in "Income From Work" than "Other Occupations". The regression results from model 1 confirms the descriptive findings. Statistics shows that leaders have a higher income than most other occupations (Statistics Norway, 2018a). This also consistent with the results of the regression. The question is *why* the income gap increased in 2016 in model 1.

A possible explanation for some of the changes could be the cuts to the corporate tax, which have happened gradually under the right-wing government. Reason for this was to stimulate economic growth, by increasing investments in Norway and make companies more internationally competitive. A reduction of one percentage point from 2014 to 2015 and two percentage points from 2015 to 2016. Which of the groups that have benefited most from the corporate tax cuts is uncertain, but based only on compensation schemes, there is reason to believe leaders have benefited more. After the corporate tax cuts in the US, large parts of the corporate tax cuts was used for stock buyback, which in turn can influence bonus- and performance measurements and increase stock prices (Isachsen, 2014; Reda, 2018). Literature also shows that the introduction of stock-based compensation is the main reason for the rapid increase in income for leaders in Norway, and that fluctuations in the stock market affect their income (Randøy & Skalpe, 2007a). Summarized, the corporate tax cut could influence the compensation schemes and bonus measurements for leaders, which in turn could influence both "Income From Capital" and "Income From Work".

Other factors which could explain the increasing "Income From Work" for "Leaders" could be changes in social norms, where it has become more acceptable with higher wages (Piketty

& Saez, 2003). The income is also affected by the company structure, and other factors such as the size of the company, revenue growth, and geographical location (Randøy & Skalpe, 2007a, 2007b).

Regression model 2 show that the gap in "Income From Capital" between "Leaders" and "Other Occupations" increased in 2015. The literature finds a clear association between higher wages and more capital income (Aaberge et al., 2018). Those in the bottom of the income distribution have limited opportunities to save and invest their income (Statistics Norway, 2018c). In 2015 "Leaders" had a considerable higher "Income from Capital" than "Other Occupations". Capital income is a fairly inaccurate measurement, as the capital income can manifest itself in years unrelated to when it was "earned" (Aaberge & Stubhaug, 2018). This implies that the capital income reported in 2015, could be a result of accumulated gains in the years before. The tax on capital income was effectively increased when the tax base of dividends were adjusted up by a factor of 1.15 in 2016, implying that the peak in "Income From Capital" in 2015 was due to tax planning. This means it can be difficult to measure the actual effect from related policy changes. The coefficient of "Income From Capital" is generally smaller than expected and therefore have a low impact on "Total Income". For 2013 and 2016, there was not a statistically significant difference in "Income From Capital" growth between the groups. The reduction in wealth tax could have an indirect effect on capital income, as the wealth tax works as a tax on the return potential of the wealth.

Regression model 3 shows that in 2015, "Leaders" increased their "Total Income" more than "Other Occupations", but not in the sample without controls and in the subsample. When the oil price was controlled for in the subsample (3c), the increase in "Total Income" for "Leaders" was not significant in 2015, the same results as when controls were removed from the sample. This could indicate that other factors affect the increase in 2015 more than the change of government.

"Leaders" had a higher "Total Income" growth than "Other Occupations" in 2016. Results from regression model 1 and 2 indicates that "Income from Work" had the most effect on the increasing income gap between "Leaders" and "Other occupations".

Since "Income from Capital" is affected by the anticipated tax hike on dividends in 2016, it could contribute to the statistically significant increase in "Total Income" in 2015. "Total Income" is the base for observing how the income gap between "Leaders" and "Other

Occupations" have developed. The next income variable; "Total Income After Tax" show how the difference in the income gap is reduced because of the redistributive effect of taxes.

Regression model 4 show that even after taxes, the gap between "Leaders" and "Other Occupations" increased. In 2015 the result was statistically significant, but not for the sample without controls and subsample. This is also shown in the descriptive findings (Figure 7.4). The results also show that "Leaders" with high income, are taxed more than those with lesser income, effectively reducing the income gap.

As shown from the theory, a change to the tax rates will affect the progressivity of the tax system and therefore the disposable income (Cahuc et al., 2014). The reduction in tax on general income and the transition from surtax to bracket tax in 2016 could be a reason for the increasing gap even after tax between "Leaders" and "Other Occupations". The bracket tax has higher tax rates than the surtax, and includes a larger part of lower income groups previously not affected. Being a flat tax, the reduction in tax on general income increased the disposable income for both groups similarly. It was reduced with 3 percentage points, from 28 percent before the government change in 2013 to 25 percentage points in 2016. The change to bracket tax and the reduction of tax on general income work in opposite ways, but since the reduction of tax on general income is larger, it will dominate. The overall tax cut leads to a higher disposable income for all groups, having minor effects on the progressivity, where the lowest income groups got a higher tax cut. The tax cuts could reduce the redistributive effect as the monetary value resulting from the tax cuts for higher income groups are larger.

"Leaders" is in the top of the income distribution, so an increase in the income gap between "Leaders" and "Other Occupations" will increase the differences between the top of the income distribution and the rest of the Norwegian population. It is therefore reasonable to say that an increased income gap between "Leaders" and "Other Occupations" will lead to an increased income inequality in Norway. The results from the regression analyses are consistent with the hypothesis that the change of government led to increased income inequality, but it is not possible to say if it is actually due to the change of government. Previous literature have however found that taxation policy affected income inequality, and the changes in income inequality was different depending on which political party that was ruling (Siegloch, 2013). The right-wing Government has made some changes that could have

affected the redistribution effect, but it is hard to isolate the effect of a government change in the regression analysis, so other factors could be the reason to the increased income inequality in Norway. Politics, demography, education policy, trade competition, finance, and labor- saving technological changes are all factors which could influence the income inequality (Modalsli et al., 2016).

9 Conclusion

The main reason for increasing income inequality in Norway is the difference between the top and the bottom of the income distribution, with increasing income shares to the top and an increase of people in lower-income groups. Statistics show that leaders as a group, compared to other occupations, are in the top of the income distribution which is consistent with the results of this paper.

The income gap between "Leaders" and "Other Occupations" has increased in 2016 for "Income From Work", "Total Income" and "Total Income After Tax". Looking at "Income From Capital" the income gap increased in 2015, but this was a result of tax planning in anticipation of higher taxes on dividends in 2016. The measure of capital income is inaccurate; the reason why there is higher reported "Income From Capital" in 2015 could be the result of the change made by the government, however, the amount could be accumulated previous years. The reduction in wealth tax could lead to increasing capital income, but because of a short time span investigated this is hard to see.

Literature shows that an important reason why leaders have seen a higher income growth than others, are the bonus and compensation schemes. The cut to the corporate tax both in 2015 and 2016, could have an effect on this because if it leads to increased share buybacks, this could affect measurements used to compensating leaders, while at the same time increase stock values.

Theory shows that changes to the tax system, affects the progressivity of the tax system and therefore also the disposable income. Changes done by the government from surtax to bracket tax, and the reduction in tax on general income, has had a total effect of tax reduction.

The results are consistent with the hypothesis that the change from a left-wing to a right-wing Government, led to increased income inequality after 2013, but it is not possible to conclude that it is actually due to the change of government. To conclude, there is an increasing income gap between leaders and other occupations, which increases the income inequality, but from this analysis, it is not possible to conclude the reason is the change of government.

Further research could measure the effect of government- and tax changes over a longer time span, this will have the advantage of seeing more of the effects of for example the wealth tax.

It would also benefit the analysis to include the entire surplus and not only the dividends with regards to capital income. All welfare transfers could be included in order to see more of the redistribution effect and get a more accurate measure of income inequality.

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Appendices

A - The 1-digit occupational classification from STYRK-08

Standarden består av følgende yrkesfelt:

1. Ledere

2. Akademiske yrker

3. Høyskoleyrker

4. Kontoryrker

5. Salgs og serviceyrker

6. Bønder, fiskere mv.

7. Håndverkere

8. Prosess- og maskinoperatører, transport- arbeidere mv.

9. Renholdere, hjelpearbeidere mv.

0. Militære yrker og uoppgitt

(Statistics Norway, 2011)

B – The variables collected from registers

Education classification

10 = Obligatorisk utdanning 1 Barneskoleutdanning 1.-7. klassetrinn

20 = Obligatorisk utdanning 2 Ungdomsskoleutdanning 8.-10. klassetrinn

30 = Mellomnivå 3 Vidaregående, grunnutdanning 11.-12. klassetrinn

40 = Mellomnivå 4 Videregående, avsluttende utdanning. I Norge vanligvis fullført VG3 13. klassetrinn

50 = Mellomnivå 5 Påbygging til vidaregående utdanning. I Norge vanligvis fagskole 14. klassetrinn

60 = Universitets- og høgskoleutdanning 6 Universitets- og høgskoleutdanning, lavere nivå. Vanligvis bachelorgrad 14. -17. klassetrinn

70 = Universitets- og høgskoleutdanning 7 Universitets- og høgskoleutdanning, høyere nivå. Vanligvis mastergrad 18.-19. klassetrinn

Part of the country

Landsdel: Landsdel, NUTS 2

Landsdel er basert på IO og kodes slik:

1 Oslo og Akershus

2 Hedmark og Oppland

3 Sør-Østlandet: Østfold, Vestfold, Buskerud og Telemark

4 Agder og Rogaland

5 Vestlandet: Hordaland, Sogn og Fjordane og Møre og Romsdal

6 Trøndelag: Sør-Trøndelag og Nord-Trøndelag

7 Nord-Norge: Nordland, Troms og Finnmark

Living area

ts_kode: Tett_spredt_kode

s = person ikke bosatt i tettsted

t = person bosatt i tettsted

u = person uplassert tett/spredt pga manglende koordinat

Economic status

Selvsosstat: Selvdefinert økonomisk status:

1 Ansatt, fulltid

2 Ansatt, deltid

3 Selvstendig næringsdrivende, fulltid

4 Selvstendig næringsdrivende, deltid

5 Arbeidsledig 6 Student eller elev i arbeidsrettet opplæring

7 Alders- eller pensjonist med avtalefestet pensjon (AFP)

8 Ufør eller ikke i stand til å arbeide

9 Utfører verneplikt

10 Hjemmearbeidende

11 Annen inaktiv person

(Revold & Holmøy, 2016 ; Thorsen & Revold, 2014; Vrålstad et al., 2013; With et al., 2017)

C- Questions from the living conditions survey

Relationship status

Hvis alder > 15 år: Siv

Er [han/hun/du] gift eller samboende?

1. Ja, gift/registrert partner

2. Ja, samboende

3. Nei

Main activity

For hver måned i 2011 ber jeg deg si hva som var din hovedaktivitet. Hva var

din hovedaktivitet i januar 2011? Var du.. I NESTE SPØRSMÅL KAN DU MERKE AV

OM AKTIVITETEN VAR DEN SAMME I HELE 2011.

1. ..heltidsansatt

2. ..deltidsansatt

3. ..selvstendig, heltid

4. ..selvstendig, deltid

5. ..arbeidsledig

6. ..pensjonist

7. ..arbeidsuør

8. ..skoleelev, student

9. ..hjemmearbeidende

10. ..annen ikke-yrkesaktiv

11. ..i verneplikt- eller sivilarbeidertjeneste

(Revold & Holmøy, 2016 ; Thorsen & Revold, 2014; Vrålstad et al., 2013; With et al., 2017)

D – Dofile from STATA

```
*Master Theses
**Combined datasets 2012, 2013, 2015, 2016

***Append datasets

***Generate Dummy for 2013 & 2015 & 2016
generate Dummy16 = Aar == 2016
generate Dummy15 = Aar == 2015
generate Dummy13 = Aar == 2013

***destring Ioyrke
 destring Ioyrke, replace

***Converting Ioyrke to sector
 egen professions = cut(Ioyrke), at (0,10,20,30,40,50,60,62,70,80,90,100)

 ***Make Sector Dummies
 gen Leaders = professions==10

 ***Make interaction terms Year x Leaders
 gen Leadersx13 = Dummy13*Leaders
 gen Leadersx15 = Dummy15*Leaders
 gen Leadersx16 = Dummy16*Leaders

 *** Dummy variable for sex (Mann=1. Kvinne =0)
 gen Gender = Kjonn_1 ==1

 *** Dummy variables for Agder and Rogaland
 gen AgderRogaland = Landsdel ==4

***drop the ones who have changed main activity
drop if Arb26_1 ==2

*** drop retirees, Students and military service
drop if Arb2601_1 ==6
drop if Arb2601_1 ==8
drop if Arb2601_1 ==11
drop if Arb2601_1 ==98
drop if Arb2601_1 ==99

*** Drop if age is under 25 and over 67 years
drop if Age <25
drop if Age >67

***Dummy for relationship status
gen DummyPermanentRelationship = Siv_1 <3

***  converting letters into numbers Urban Area (Urban Area=1 Not Urban Area=0)
generate DummyUrbanArea=.
replace DummyUrbanArea=0 if Ts_kode =="s"
replace DummyUrbanArea=1 if Ts_kode =="t"
replace DummyUrbanArea=2 if Ts_kode =="u"
drop if DummyUrbanArea==2
```

```
***Dummy for educationlevel
destring Utdnivaa_nus2000_1 , replace
drop if Utdnivaa_nus2000_1==9
drop if Utdnivaa_nus2000_1==99
egen Utdnivå3 = cut( Utdnivaa_nus2000_1 ), at (0,60,90)
gen DummyHigherEduc = Utdnivå3 == 60


*** Regressions

** Income after tax
reg IncomeAfterTax Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
,robust
*without controls
reg IncomeAfterTax Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16,robust
*Without Rogaland and Agder
reg IncomeAfterTax Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
if AgderRogaland==0 ,robust


** Capital Income
reg CapitalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
,robust
*without controls
reg CapitalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 ,robust
*Without Rogaland and Agder
reg CapitalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
if AgderRogaland==0 ,robust


** Total Income
reg TotalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
,robust
*without controls
reg TotalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 ,robust
*Without Rogaland and Agder
reg TotalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
if AgderRogaland==0 ,robust


** Income from work
reg IncomeFromWork Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
,robust
*without controls
reg IncomeFromWork Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 ,robust
*Without Rogaland and Agder
reg IncomeFromWork Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15
Dummy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship
if AgderRogaland==0 ,robust
```

E - Assumptions MLR.1-MLR.5

Linear in Parameters

MLR.1 The model can be written as $Y= \beta o+ \beta 1x1+ \beta 2x2+...+ \beta kxk +u$, where βo, $\beta 1,....$ βk are the unknown parameters(constant) of interest and u is an unobserved random error or disturbance term.

Random sampling

MLR.2 We have a random sample of n observations, ((xi1,xi2,…,xik, Yi): i=1,2,…,n), following the population model in Assumption MLR.1.

No perfect collinearity

MLR.3 In the sample (and therefore the population), none of the independent variables is constant, and there are no exact linear relationships among the independent variables.

Zero conditional mean

MLR.4 The error u has expected value of zero given any values of the independent variables. In other words, E(u/x1,x2,…,xk)=0

Homoscedasticity

MLR.5 The error u has the same variance given any values of explanatory variables. In other words, Var(u/x1,…,xk) = q^2

(Wooldridge, 2014)

F – Regression outputs from STATA

```
. ** Income from work
. reg IncomeFromWork Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Du
> mmy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship ,ro
> bust

Linear regression                               Number of obs     =     15,550
                                                F(12, 15537)      =     368.12
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2391
                                                Root MSE          =     2.7e+05
```

IncomeFromW~k	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	20367.77	26066	0.78	0.435	-30724.63	71460.18
Leadersx15	26782.81	25237.02	1.06	0.289	-22684.7	76250.32
Leadersx16	55866.91	24274.04	2.30	0.021	8286.957	103446.9
Leaders	165486.6	18553.83	8.92	0.000	129118.9	201854.2
Dummy13	20215.46	6115.297	3.31	0.001	8228.763	32202.15
Dummy15	31798.78	6288.579	5.06	0.000	19472.43	44125.13
Dummy16	40562.08	6286.709	6.45	0.000	28239.39	52884.76
Gender	190918.5	4388.271	43.51	0.000	182317	199520
Age	-26.58663	195.4986	-0.14	0.892	-409.7866	356.6134
DummyHigher~c	177724.6	4645.27	38.26	0.000	168619.3	186829.9
DummyUrbanA~a	52112.55	5097.342	10.22	0.000	42121.16	62103.93
DummyPerman~p	77485.45	4916.134	15.76	0.000	67849.25	87121.65
_cons	152193.9	12169.79	12.51	0.000	128339.7	176048.1

```
. *without controls
. reg IncomeFromWork Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Du
> mmy16 ,robust

Linear regression                               Number of obs     =     15,577
                                                F(7, 15569)       =     109.46
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0613
                                                Root MSE          =     3.0e+05
```

IncomeFrom~k	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	25696.56	28193.31	0.91	0.362	-29565.6	80958.71
Leadersx15	15774	27322.9	0.58	0.564	-37782.07	69330.07
Leadersx16	57004.11	26110.19	2.18	0.029	5825.104	108183.1
Leaders	219568	19929.14	11.02	0.000	180504.6	258631.4
Dummy13	22688.37	6817.381	3.33	0.001	9325.509	36051.23
Dummy15	32329.63	7044.395	4.59	0.000	18521.8	46137.46
Dummy16	40479.35	7010.526	5.77	0.000	26737.9	54220.8
_cons	423167.3	4818.623	87.82	0.000	413722.2	432612.4

```
. *Without Rogaland and Agder
. reg IncomeFromWork Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Du
> mmy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship if
> AgderRogaland==0 ,robust

Linear regression                               Number of obs     =     13,263
                                                F(12, 13250)      =     310.60
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2368
                                                Root MSE          =     2.6e+05
```

IncomeFromW~k	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	17056.68	27710.17	0.62	0.538	-37259.21	71372.58
Leadersx15	13993.25	26586.25	0.53	0.599	-38119.59	66106.1
Leadersx16	57106.8	25675.58	2.22	0.026	6778.99	107434.6
Leaders	166744.4	19866.18	8.39	0.000	127803.9	205685
Dummy13	17139.71	6434.399	2.66	0.008	4527.364	29752.05
Dummy15	29999.32	6647.638	4.51	0.000	16969	43029.64
Dummy16	35999.2	6643.042	5.42	0.000	22977.89	49020.51
Gender	180799.3	4636.416	39.00	0.000	171711.2	189887.3
Age	-82.41434	206.4843	-0.40	0.690	-487.153	322.3244
DummyHigher~c	175431.3	4898.634	35.81	0.000	165829.3	185033.3
DummyUrbanA~a	47778.41	5411.919	8.83	0.000	37170.28	58386.55
DummyPerman~p	72529.9	5152.913	14.08	0.000	62429.45	82630.35
_cons	165024.6	12906.02	12.79	0.000	139727	190322.3

```
. ** Capital Income
. reg CapitalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Dum
> my16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship ,rob
> ust

Linear regression                               Number of obs     =     15,550
                                                F(12, 15537)      =      27.45
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0345
                                                Root MSE          =      66789
```

CapitalIncome	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	3931.869	4938.404	0.80	0.426	-5747.979	13611.72
Leadersx15	24502.78	8202.739	2.99	0.003	8424.459	40581.11
Leadersx16	8149.23	6748.195	1.21	0.227	-5078.02	21376.48
Leaders	5996.846	3638.514	1.65	0.099	-1135.066	13128.76
Dummy13	1300.708	995.9649	1.31	0.192	-651.5	3252.915
Dummy15	7197.597	1447.265	4.97	0.000	4360.788	10034.41
Dummy16	8649.504	1394.927	6.20	0.000	5915.284	11383.72
Gender	12442.77	1060.091	11.74	0.000	10364.86	14520.67
Age	599.4541	45.36504	13.21	0.000	510.5334	688.3749
DummyHigher~c	9240.031	1181.407	7.82	0.000	6924.336	11555.73
DummyUrbanA~a	3366.853	1237.425	2.72	0.007	941.3558	5792.351
DummyPerman~p	3811.608	1060.845	3.59	0.000	1732.228	5890.989
_cons	-33391.31	2854.293	-11.70	0.000	-38986.06	-27796.56

```
. *without controls
. reg CapitalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Dum
> my16 ,robust

Linear regression                               Number of obs     =     15,577
                                                F(7, 15569)       =      17.36
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0142
                                                Root MSE          =      67419
```

CapitalInc~e	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	4254.129	5006.026	0.85	0.395	-5558.264	14066.52
Leadersx15	23481.63	8258.345	2.84	0.004	7294.318	39668.95
Leadersx16	8314.274	6808.299	1.22	0.222	-5030.784	21659.33
Leaders	10412.31	3697.98	2.82	0.005	3163.841	17660.78
Dummy13	1515.158	1005.013	1.51	0.132	-454.7845	3485.1
Dummy15	7465.431	1458.77	5.12	0.000	4606.071	10324.79
Dummy16	8535.07	1412.082	6.04	0.000	5767.224	11302.92
_cons	10220.04	727.4935	14.05	0.000	8794.069	11646.01

```
. *Without Rogaland and Agder
. reg CapitalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Dum
> my16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship if A
> gderRogaland==0 ,robust
```

Linear regression

Number of obs	= 13,263
F(12, 13250)	= 23.54
Prob > F	= 0.0000
R-squared	= 0.0348
Root MSE	= 65454

CapitalIncome	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	4325.716	5062.983	0.85	0.393	-5598.456	14249.89
Leadersx15	23631.65	8891.483	2.66	0.008	6203.071	41060.23
Leadersx16	9256.362	7148.857	1.29	0.195	-4756.42	23269.14
Leaders	3117.218	3727.616	0.84	0.403	-4189.443	10423.88
Dummy13	1021.1	1054.973	0.97	0.333	-1046.798	3088.998
Dummy15	6509.222	1529.53	4.26	0.000	3511.125	9507.32
Dummy16	8137.429	1465.82	5.55	0.000	5264.212	11010.65
Gender	13709.67	1123.429	12.20	0.000	11507.59	15911.75
Age	576.8417	48.38966	11.92	0.000	481.991	671.6923
DummyHigher~c	10054.65	1267.404	7.93	0.000	7570.352	12538.94
DummyUrbanA~a	3198.864	1329.218	2.41	0.016	593.4054	5804.322
DummyPerman~p	3909.639	1129.916	3.46	0.001	1694.842	6124.435
_cons	-33508.35	3076.3	-10.89	0.000	-39538.34	-27478.36

```
. ** Total Income
. reg TotalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Dummy
> 16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship ,robus
> t

Linear regression                               Number of obs     =     15,550
                                                F(12, 15537)      =     343.74
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2433
                                                Root MSE          =     2.6e+05
```

TotalIncome	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	18709.36	23915.39	0.78	0.434	-28167.61	65586.32
Leadersx15	47078.4	23968.38	1.96	0.050	97.58735	94059.22
Leadersx16	59092.19	24021.77	2.46	0.014	12006.71	106177.7
Leaders	152483.7	16991.5	8.97	0.000	119178.4	185789
Dummy13	25897.18	5568.991	4.65	0.000	14981.31	36813.05
Dummy15	63610.7	5807.847	10.95	0.000	52226.64	74994.76
Dummy16	84906.87	5918.336	14.35	0.000	73306.25	96507.5
Gender	181462.9	4148.944	43.74	0.000	173330.5	189595.3
Age	2661.207	183.4889	14.50	0.000	2301.547	3020.866
DummyHigher~c	161210.1	4434.697	36.35	0.000	152517.5	169902.6
DummyUrbanA~a	56162.65	4715.544	11.91	0.000	46919.63	65405.67
DummyPerman~p	51146.71	4484.15	11.41	0.000	42357.25	59936.16
_cons	111065.1	11489.27	9.67	0.000	88544.79	133585.4

```
. *without controls
. reg TotalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Dummy
> 16 ,robust

Linear regression                               Number of obs     =     15,577
                                                F(7, 15569)       =     133.22
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0767
                                                Root MSE          =     2.8e+05
```

TotalIncome	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	23572.26	25961.08	0.91	0.364	-27314.48	74459
Leadersx15	35070.4	25997.15	1.35	0.177	-15887.03	86027.83
Leadersx16	61513.96	25891.69	2.38	0.018	10763.23	112264.7
Leaders	207256.6	18348.2	11.30	0.000	171292	243221.2
Dummy13	28179.91	6179.493	4.56	0.000	16067.38	40292.44
Dummy15	65561.46	6449.334	10.17	0.000	52920.02	78202.91
Dummy16	84650.17	6568.723	12.89	0.000	71774.71	97525.63
_cons	478655.1	4334.761	110.42	0.000	470158.5	487151.8

```
. *Without Rogaland and Agder
. reg TotalIncome Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Dummy
> 16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship if Agd
> erRogaland==0 ,robust
```

Linear regression

Number of obs	=	13,263	
F(12, 13250)	=	290.48	
Prob > F	=	0.0000	
R-squared	=	0.2436	
Root MSE	=	2.5e+05	

TotalIncome	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	15757.77	25294.68	0.62	0.533	-33823.42	65338.95
Leadersx15	32974.19	25270.69	1.30	0.192	-16559.98	82508.35
Leadersx16	59969.88	25335.82	2.37	0.018	10308.05	109631.7
Leaders	152449.5	17924.45	8.51	0.000	117315	187584
Dummy13	23598.87	5879	4.01	0.000	12075.19	35122.55
Dummy15	64069.76	6094.579	10.51	0.000	52123.52	76016.01
Dummy16	82371.31	6268.438	13.14	0.000	70084.27	94658.34
Gender	173377.9	4379.378	39.59	0.000	164793.7	181962.1
Age	2653.159	194.7322	13.62	0.000	2271.456	3034.862
DummyHigher~c	159675.9	4686.018	34.07	0.000	150490.6	168861.2
DummyUrbanA~a	52316.91	5015.333	10.43	0.000	42486.15	62147.68
DummyPerman~p	49796.59	4711.22	10.57	0.000	40561.93	59031.26
_cons	115832.3	12232	9.47	0.000	91855.83	139808.8

```
. ** Income after tax
. reg IncomeAfterTax Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Du
> mmy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship ,ro
> bust

Linear regression                               Number of obs     =     15,550
                                                F(12, 15537)      =     335.60
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2334
                                                Root MSE          =     1.6e+05
```

IncomeAfter~x	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	7381.118	14225.77	0.52	0.604	-20503.04	35265.28
Leadersx15	28136.11	14298.75	1.97	0.049	108.8996	56163.32
Leadersx16	36833.13	14567.96	2.53	0.011	8278.23	65388.03
Leaders	92894.21	10176.28	9.13	0.000	72947.52	112840.9
Dummy13	18458.73	3422.56	5.39	0.000	11750.12	25167.35
Dummy15	47168.86	3573.026	13.20	0.000	40165.31	54172.4
Dummy16	60772.65	3679.114	16.52	0.000	53561.15	67984.14
Gender	107688.1	2551.949	42.20	0.000	102686	112690.2
Age	1260.405	113.656	11.09	0.000	1037.626	1483.184
DummyHigher~c	94658.81	2716.895	34.84	0.000	89333.38	99984.25
DummyUrbanA~a	33080.38	2981.454	11.10	0.000	27236.38	38924.38
DummyPerman~p	27944.85	2783.178	10.04	0.000	22489.5	33400.21
_cons	145328.6	7136.873	20.36	0.000	131339.5	159317.7

```
. *without controls
. reg IncomeAfterTax Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Du
> mmy16,robust

Linear regression                               Number of obs     =     15,577
                                                F(7, 15569)       =     147.61
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0801
                                                Root MSE          =     1.7e+05
```

IncomeAfte~x	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	10289.49	15331.08	0.67	0.502	-19761.21	40340.2
Leadersx15	21054.01	15410.85	1.37	0.172	-9153.044	51261.06
Leadersx16	38287.3	15558.87	2.46	0.014	7790.113	68784.5
Leaders	124525.6	10905.19	11.42	0.000	103150.2	145901
Dummy13	19637.3	3763.105	5.22	0.000	12261.18	27013.42
Dummy15	48186.06	3932.453	12.25	0.000	40477.99	55894.12
Dummy16	60628.93	4049.361	14.97	0.000	52691.71	68566.14
_cons	346312.6	2648.985	130.73	0.000	341120.3	351504.9

```
. *Without Rogaland and Agder
. reg IncomeAfterTax Leadersx13 Leadersx15 Leadersx16 Leaders Dummy13 Dummy15 Du
> mmy16 Gender Age DummyHigherEduc DummyUrbanArea DummyPermanentRelationship if
> AgderRogaland==0 ,robust

Linear regression                               Number of obs     =     13,263
                                                F(12, 13250)      =     283.37
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2327
                                                Root MSE          =     1.5e+05
```

IncomeAfter~x	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Leadersx13	5247.936	15204.43	0.35	0.730	-24554.91	35050.78
Leadersx15	17525.38	15177.82	1.15	0.248	-12225.32	47276.07
Leadersx16	35378.08	15343.96	2.31	0.021	5301.733	65454.43
Leaders	93973.65	10820.14	8.69	0.000	72764.62	115182.7
Dummy13	17087.37	3630.64	4.71	0.000	9970.799	24203.95
Dummy15	47741.15	3757.5	12.71	0.000	40375.91	55106.39
Dummy16	59360.04	3899.385	15.22	0.000	51716.68	67003.39
Gender	102563.2	2697.735	38.02	0.000	97275.3	107851.2
Age	1269.515	120.9073	10.50	0.000	1032.519	1506.511
DummyHigher~c	93994.02	2879.326	32.64	0.000	88350.13	99637.91
DummyUrbanA~a	30900.51	3163.187	9.77	0.000	24700.21	37100.8
DummyPerman~p	27364.23	2928.952	9.34	0.000	21623.06	33105.39
_cons	147144.8	7596.633	19.37	0.000	132254.3	162035.3