Master thesis - International Economics

Inward FDI stock and income distribution: an analysis from an income group perspective

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Abstract

This thesis analyses the effect of inward FDI stock on income distribution and how this effect is influenced by tax on capital. First it analyses the effect on the income shares of different income groups and thereafter on the income components capital and labour. The annual data consists of an unbalanced panel of 25 countries over the period 1980-2016. The analysis is performed by a country and time fixed effects model and an Arellano-Bond GMM model with a first-differences approach. The strongest evidence suggests that inward FDI stock contributes to an increase in income shares of the top 0.05 to the top 10 percent of the income distribution. The effect on the income shares of the middle and bottom income groups seems to depend on the specific FDI case and thus the evidence is less clear. Tax on capital dampens and in some cases even mutes the positive effect of inward FDI stock on the top income shares.

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Contents

1 Introduction

From January 2020 onward, the Netherlands planned to completely abolish their tax on dividend. According to the chairmen of the Dutch coalition parties VVD, D66, CDA and CU this abolition would have a positive effect on employment and Foreign Direct Investment (hereafter: FDI) in the country (Giebels & Pols, 2017). The country's prime-minister Mark Rutte stated it would be irresponsible and of a great risk to keep the tax on dividend: the Netherlands would damage its investment climate. For example, in 2017 FDI in the Netherlands contributed to almost 13.000 new jobs ("Bijna 13.000 banen erbij door buitenlandse investeringen", 2018). However, not everyone has been in favour of the tax abolition: why would the government spend 1.4 billion euros of the state's budget on the population with already the highest (capital) income shares rather than on the lower and middle classes of the Dutch population (Hofs, 2018)? The prime-minister received even more criticism after his recent decision to not abolish the tax on dividend anymore due to the choice of Unilever to keep part of their headquarter (hereafter: HQ) services in the United Kingdom (Leijten, 2018). Not only in the Netherlands, but also in the rest of the world the necessity of attracting FDI is a topic with opposing views. While the proponents of FDI state it helps to stimulate the labour market by more labour demand and thus higher wages, opponents state that only the richest parts of the population actually profit.

This thesis analyses the effect of inward FDI stock on income distribution. More specifically it studies which income groups of the income distribution in an economy actually benefit from inward FDI stock and which do not or even experience negative effects. Therefore, the research question is:

What is the effect of inward FDI stock on the income distribution of the receiving economy and how is this effect influenced by tax on capital?

I use unbalanced annual panel data of 25 countries over the period 1980-2016. Using the extensive databases of Roine et al. (2009), the World Income Inequality Database and the World Inequality Database I am able to analyse the effect of inward FDI stock on the income shares of the population in 16 intervals of the income distribution: the top 0.05, top 0.1, top 0.5, top 1, top 5, top 10, top 20, middle 60-80, middle 40-60, middle 20-40, bottom 90, bottom 80, bottom 60, bottom 40, bottom 20 and bottom 10 percent. Further, I analyse how the income components capital and labour are influenced by inward FDI stock. Using a first-differences fixed effects analysis I find that FDI contributes to income inequality by only benefitting the income shares of the top 0.05 to the top 10 percent of the income distribution and in some cases hurting the middle and poorer parts of the population. The negative effect of tax on capital on the income shares of the top 0.5 to the top 10 percent dampens and in some cases mutes the positive effect of inward FDI stock. Further, the share of capital income in total income is negatively affected by inward FDI stock. Overall, the Arellano-Bond Generalised Method of Moments (hereafter: GMM) estimator shows consistent results.

The societal relevance of this topic is - especially in recent times - of great importance. To continue taking the Netherlands as an example, not only the mixed feelings about the abolition of the tax on

dividend have led to social discussions. For example, the leaked tax deals of the government with multinational enterprises (hereafter: MNEs) with the goal of keeping them in the country enhanced the discussion even more (Driessen, 2017). Not only in the Netherlands these kind of revelations suggest that governments deem to put a lot of effort in benefitting the investment climate. Taking the recent U.S. tax reform as another example, world leaders like Donald Trump in the United States are well-known for their investment-enriching view as well (Rizzo, 2018). The arguments of a great investment climate mainly consist of the claim that it benefits economical activity in a country, which leads to employment and thus to income gains. However, the question which income groups are responsible for the overall income gain is a question that has not been answered yet. Therefore, splitting the population in income groups and analysing *who* it really is that benefits, is of highly societal need and important for future policy choices.

Moreover, in economic theory no clear conclusion has been drawn yet. For example, according to the theoretical model of MacDougall-Kemp capital owners will lose and workers will win from FDI (Bowen, Hollander, & Viaene, 1998). However, the extension of Ruffin (1984) predicts that an increase in the supply of capital will only benefit the providers of skilled labour. Markusen (1995), Taylor and Driffield (2005) and Aitken, Harrison and Lipsey (1996) predict that the equilibrium wages will rise as a result of FDI. However, FDI might also decrease the demand for skilled labour if the operations of the foreign affiliate are less skill intensive. Furthermore, empirical literature has not found a clear conclusion either. Gopinath and Chen (2003) found that capital mobility widened the gap between skilled and unskilled workers within developing countries. Figini and Görg (2011) found the opposite effect for developed countries. Other studies found FDI having a negative long-run but positive short-run effect on income inequality (Herzer & Nunnenkamp, 2013; Herzer, Hühne, & Nunnenkamp, 2014; Chintrakarn, Herzer, & Nunnenkamp, 2012). A further important note is that most of the empirical studies use income inequality indicators like Gini coefficients as dependent variables and thus are only able to draw conclusions on whether FDI affects total income inequality. Thus, this thesis contributes to existing literature in the following way: by taking a closer look on which income groups in the income distribution are mainly affected, this thesis extends the literature and provides insights in the mechanism behind the effect these studies found on income inequality indicators.

The remainder of this thesis is structured as follows. Section 2 provides theoretical and empirical background for the topic. Section 3 discusses the used data and conducted methodology. Section 4 provides the main results. Finally, Section 5 discusses the findings and concludes.

2 Theoretical framework and empirical literature

2.1 Theoretical framework

The MacDougall-Kemp model, which analyses the effects of international capital mobility on income distribution, is the baseline model for this thesis (MacDougall, 1960). The MacDougall-Kemp model

answers questions regarding the effect of international capital mobility on the level and distribution of income in the capital receiving country. Assuming international capital mobility being similar to the fluctuation of in- and outward FDI stock makes this theory relevant for my thesis. I start with using the MacDougall-Kemp model for the macro-explanation of inward FDI stock and its theoretical effect on the receiving country. Secondly, I use the more rigorous model of Ruffin (1984) to be more able to apply the theory of the MacDougall-Kemp model into the real world by focusing on three rather than two factors of production. Finally, based on the implications of these models, I use several other theories that - in contrast to the theories mentioned before - focus on similar factor endowments to explain the more micro-level mechanisms behind the effect of inward FDI stock on income distribution.

2.1.1 The basics behind international capital mobility and income distribution

Starting with basic economic theory, I use the MacDougall-Kemp model to explain international capital mobility, which I classify as fluctuations in in- and outward FDI stock. The MacDougall-Kemp model consists of two countries, H and P, that form a common market. Each country produces two primary factors: capital K and labour L. The production functions, $F(K_h, L_h)$ and $F(K_p, L_p)$, are neoclassical and have similar functional forms:

$$F(K_h, L_h) : Q_h = K_h^{\alpha} \times L_h^{(1-\alpha)} \tag{1}$$

$$F(K_p, L_p) : Q_p = K_p^{\alpha} \times L_p^{(1-\alpha)} \tag{2}$$

Only the capital-labour ratios are different, with H being relatively more capital-abundant than P and P being more labour abundant than H:

$$\frac{K_h}{L_h} > \frac{K_p}{L_p} \tag{3}$$

With the price normalised to unity, returns on capital are equal to the marginal product of capital and returns on labour are equal to the marginal product of labour:

$$r_h = \frac{\partial Q_h}{\partial K_h}, w_h = \frac{\partial Q_h}{\partial L_h} \tag{4}$$

$$r_p = \frac{\partial Q_p}{\partial K_p}, w_p = \frac{\partial Q_p}{\partial L_p} \tag{5}$$

With H being relatively more capital-abundant than P and assuming α_h being similar to α_p we know that:

$$r_p > r_h \tag{6}$$

$$w_p < w_h \tag{7}$$

Thus, capital owners in H receive a smaller return on their investments than capital owners in P. Therefore, with international capital mobility capital owners in H will transfer their capital to P in order to receive a higher return on capital. In this thesis I classify this movement of capital on a certain point in time as FDI inflow, with P being the FDI inflow receiving country. H will let its capital flow to P until r_h and r_p are equalised, since from this point onward none of the two countries can be better off anymore and an equilibrium is reached:

$$\frac{\partial(Q_h - \Delta K_h)}{\partial(K_h - \Delta K_h)} = \frac{\partial(Q_p + \Delta K_h)}{\partial(K_p + \Delta K_h)} \tag{8}$$

This equilibrium leads to a lower return on capital for the initial capital owners in P. Thus, with H's FDI outflow to P, capital income of P's capital owners will drop. Since now there is more K in P, P's capital-labour ratio will increase [1]:

$$\frac{K_p^1}{L_p^1} > \frac{K_p^0}{L_p^0} \tag{9}$$

Labour is now the scarce factor in P and thus its marginal return w_p will increase. Thus, workers in P should profit from H's FDI outflow to P.

Figure 1 shows the movement of FDI inflow discussed so far visually. The vertical axes of Figure 1 measure r_h and r_p. The capital stock is measured by the distance $OO*$ along the horizontal axis. Without capital mobility, capital stock OK_0 is owned by H and K_0O* by P. The curves hh and pp relate the capital stock to the physical marginal product of capital in each country, holding labour fixed. The initial allocation implies $r_h^0 < r_p^0$ and $w_h^0 > w_p^0$. Total home output is equal to the area under the curve hh up to K_0. The part of output that goes to domestic capital owners is equal to the return on capital times the capital stock, $r_h^0 \times OK_0$. The part of output that goes to labour is the remaining area under each curve. By analogy, the same can be said about the output and income distribution of P. If capital mobility is present, capital will flow from the low return to the high return country (from H to P) until marginal returns on capital are equalised at point e, as shown in Equation 8. At point e, the quantity K_0K_1 of H's capital has been transferred to P and the new return to capital is r_{cm}.

[1] The variables with superscript 0 are the values before FDI inflow took place. The variables with superscript 1 are the values after FDI inflow took place

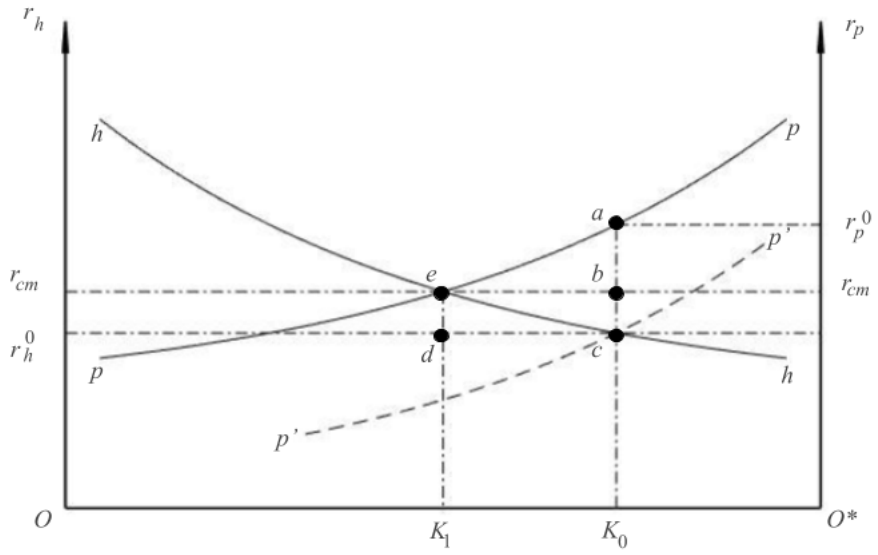

Figure 1: International allocation of capital. (Bowen et al., 1998)

The outflow of H's capital causes a gain in total welfare of FDI inflow receiving country P. However, as discussed in Equation 9 all the gains go to labour rather than capital owners in P. This can be shown visually in Figure 1 as well. Production in P increases by area eaK_0K_1, but there is a less than offsetting repatriation of profits paid to capital owners in H, area ebK_0K_1. The gain in P is thus eab. This gain goes only to workers in P, who also absorb the decrease in the return of foreign capital, area $abr_{cm}r_p^0$. In contrast, the capital-labour ratio of H decreases, and thus its real wage and real returns on capital move in opposite directions: capital owners gain and workers lose. Thus, based on this basic theory of capital mobility one can expect capital owners in the FDI inflow receiving country to lose income and labour owners to gain in income. The amount of total lost income does not offset the amount of total gained income and thus a total welfare gain is realised in FDI inflow receiving country P.

The total accumulated value of foreign owned capital in P (accumulated value of FDI inflow) is called FDI inward stock. With FDI inward stock, one is able to capture the long-term effect of H's FDI inflow in P on the mentioned workers. Assuming that H will keep its capital in P for a certain amount of time, the workers will not only profit during the period in which the FDI inflow took place, but during the whole period in which the inward FDI stock is in the country. Therefore, in my thesis I am using inward FDI stock as variable of interest to be more able to capture the long-term effect.

2.1.2 Extension with three production factors

One of the limitations of the MacDougall-Kemp model is that it assumes the factor labour to be homogeneous. However, it is realistic that in today's world heterogeneity among the factor labour is present and thus not all workers experience the positive effect of inward FDI stock on their labour income as predicted by the MacDougall-Kemp model. Using the Ruffin (1984) model we can distinguish the factor labour into unskilled labour and skilled labour. The model assumes any three factors of production - in this thesis unskilled labour, skilled labour and capital following Thompson and Clark (1983) and Krusell, Ohanian, Ríos-Rull, and Violante (2000) - and two goods in a small open economy under constant returns to scale. Two of these three factors are marked as extreme factors and the other factor is the middle factor. The extreme factors are the two factors differing most in factor usage across sectors. Ruffin (1984) showed that increasing the supply of one of the extreme factors lowers the real return to the other extreme factor at constant commodity prices. As inward FDI stock is the point of interest in this thesis, this model can help predict the reaction of unskilled labour and skilled labour on the increased supply of capital (inward FDI stock). To be able to make this prediction, it has to be determined which two of the three factors unskilled labour, skilled labour and capital are the extreme factors. I use the hypothesis of capital-skill complementarity determined by Griliches (1969) and the empirical confirmations of Stokey (1996) and Krusell et al. (2000) to mark unskilled labour and capital as extreme factors and skilled labour as middle factor.

The hypothesis of capital-skill complementarity by Griliches (1969) predicts that elasticity of substitution is higher between capital and unskilled labour than between capital and skilled labour using a neoclassical growth model. The framework implicates that growth in the stock of capital tends to increase the marginal product of skilled labour, but tends to decrease the marginal product of unskilled labour. To illustrate how the combination of the theories of Ruffin (1984) and Griliches (1969) can help explaining the effect of inward FDI stock on income distribution, I consider the three-factor production function used by Stokey (1996). Output is produced with the three factors capital (K), unskilled labour (U) and skilled labour (S), with K and U being perfect substitutes and both having unit elasticity of substitution with S. If we use country P again as an example, we get the following equation (see the difference with Equation 2):

$$Q_p = F(K_p, U_p, S_t) = (K_p + U_p)^{\alpha} \times S_p^{(1-\alpha)} \tag{10}$$

The ratio of the marginal product of skilled labour to the marginal product of unskilled labour is:

$$\frac{\frac{\partial Q_p}{\partial S_p}}{\frac{\partial Q_p}{\partial U_p}} = (\frac{1-\alpha}{\alpha}) \times \frac{K_p + U_p}{S_t} \tag{11}$$

This equation shows that the growth in capital increases the marginal product of skilled labour but decreases the marginal product of unskilled labour. Thus, if country P's inward FDI stock increases, labour income of the unskilled workers will decrease but that of skilled labour will increase according to this model.

Thus, based on the MacDougall-Kemp (1960) model, the extension of Ruffin (1984) and Griliches (1969) and assuming that the poorest parts of the population are unskilled workers and the richest parts of the population are skilled workers and capital holders, I predict to find that inward FDI stock leads to more income inequality by benefitting the rich part of the population and hurting the poor part of the population. Thus, the first hypothesis is:

H_1: An increase in inward FDI stock increases income inequality by hurting the poorest and benefitting the richest income groups.

Moreover, looking at the income components I expect to find that inward FDI stock has a positive effect on skilled labour income and a negative effect on capital income, which leads to the second hypothesis:

H_2: An increase in inward FDI stock has a negative effect on capital income and a positive effect on skilled labour income.

2.1.3 Tax on capital

Things can change when tax on capital is added to the model. If we assume that country P, the country that experiences an increase in inward FDI stock, imposes a tax on capital the marginal return on capital will now be:

$$r_p = (1 - t_p)\frac{\partial Q_p}{\partial K_p} \tag{12}$$

This equation is also shown visually in Figure 1. If the imposed tax rate on capital is ac/aK_0, this affects the quantity of capital inflows in P. Now investors will consider the line $p'p'$ instead of pp and an equilibrium is reached in c. Due to taxation, global welfare loss is eac. This area completely offsets the initial gain due to the free mobility of capital. It is not very realistic that a country will impose such a high tax on capital that no inward FDI stock will exist in that country anymore. Thus, the third hypothesis is based on a less than inward FDI stock offsetting tax rate on capital:

H_3: Tax on capital negatively (positively) influences the positive (negative) effect of an increase of inward FDI stock on income shares.

2.1.4 Discussion of the MacDougall-Kemp and Ruffin model

The models of MacDougall-Kemp (1960) and Ruffin (1984) both assumed differences in factor endowments as driver behind factor mobility and thus FDI flows between countries. However, more recent theories such as the one of Markusen (1995) state that advanced countries hosting most of the world-wide inward FDI stock have similar factor endowments. According to his model, operations of foreign MNEs are more skilled-labour intensive than the operations of domestic firms in the host country. In

line with this statement, Taylor and Driffield (2005) argue that MNEs might put upward pressure on local wages for skilled labour. MNEs have firm-specific assets granting them a productivity advantage over domestic firms in the host country. If these productivity advantages are significant, equilibrium wages should rise in response to increases in inward FDI stock (Aitken et al., 1996). By increasing the local demand for skilled labour, an increase in inward FDI stock could lead to greater inequality, which supports the theory of Ruffin (1984) and the second hypothesis.

However, the opposite conclusion of an increase in inward FDI stock leading to less wage inequality can also be reached by refining the ranking of skill intensities at the plant and firm level. The above theory of MNEs being more skill intensive than domestic firms does not account for differences between more skill intensive HQ services and less skill intensive plant operations (Markusen, 1995). Further, domestic firms consist of both national firms without affiliate operations abroad and of domestic MNEs with HQ services in their own country. In this setting, an increase in inward FDI stock might decrease the demand for skilled labour if the operations of foreign affiliates in the host country are considerably less skill intensive than the HQ services provided by the parent company from its home country. Thus, foreign affiliates may reduce the relative demand for skilled labour in host countries where the HQ services shape the demand for skilled labour.

2.1.5 Non-linearities

According to theoretical arguments the relationship between inward FDI stock and income inequality is assumed to be non-linear. Domestic firms may benefit from FDI-related spillovers, but the transition to a new technological paradigm requires learning and skill upgrading for domestic firms to absorb the new technologies introduced by foreign MNEs (Aghion & Howitt, 1998). The model of Aghion and Howitt (1998) models this transition by referring to Kuznets inverted-U hypothesis, which states that the economic development of a country consists of rising and then falling inequality, which is visualised in Figure 2. The skill premium should increase as long as learning efforts result in high demand for skills that are in short supply, but wage inequality will decrease to the extent that the supply of the required skills improves. Figini and Görg (2011) predict that inequality will increase when FDI enters the economy with new technology, but will decrease afterwards. Therefore I expect to find a non-linear negative effect of inward FDI stock on income inequality, which leads to the fourth and last hypothesis:

H_4: The effect of inward FDI stock on income inequality is non-linear.

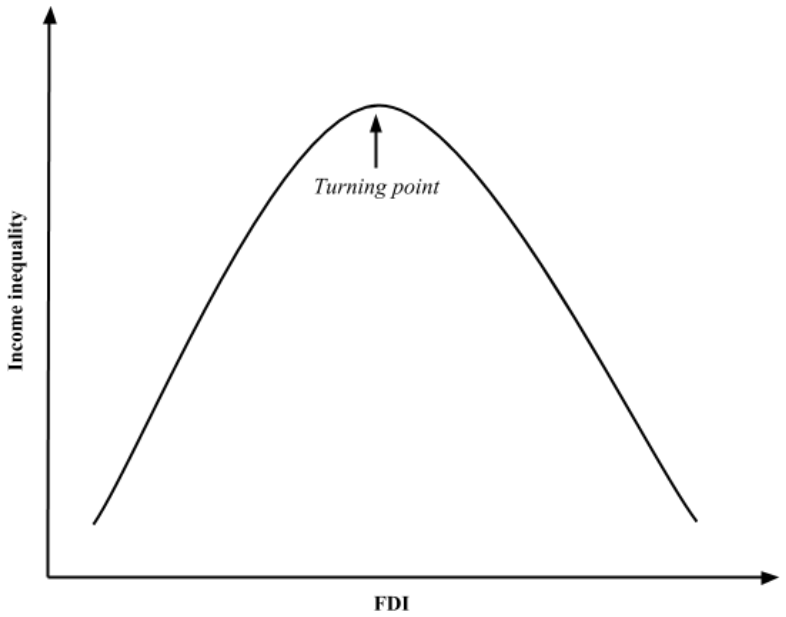

Figure 2: Inverted-U hypothesis of inward FDI stock and income inequality. (Aghion & Howitt, 1998)

2.1.6 Summary

To summarise the theoretical models discussed so far, inward FDI stock is expected to have a positive effect on skilled labour providers - who are assumed to be the richer groups of the population - and a negative effect on unskilled labour providers - who are assumed to be the poorer groups of the population. This expected effect takes place due to complementarity (substitutability) between capital and skilled labour (unskilled labour). This effect is also expected to take place since mostly MNEs demand more skilled labour than unskilled labour. However, we need to keep in mind that if MNEs invest in for example foreign production affiliates we could also see a rise in demand for unskilled labour and thus an upward pressure on its wages.

2.2 Empirical literature

Empirical studies on the effect of FDI inflows and inward FDI stock on income inequality are abundant in the academic literature and vary from worldwide cross-country to regional cross-country analyses.

2.2.1 Wordwide studies

Gopinath and Chen (2003) studied 15 developed and 11 developing countries to empirically test the general equilibrium model that states that capital inflows (outflows) increase (lower) wages in host (home) countries due to change in relative factor endowments. Although they find that capital mobility

leads to cross-country convergence of wages, they also find that capital mobility has widened the gap between skilled and unskilled workers within developing countries.

Another world-wide study on domestic wage inequality effects of inward FDI stock is done by Figini and Görg (2011), whose theory is also mentioned in Section 2.1. They use panel data of 103 developed and developing countries and test for and find a non-linear effect of inward FDI stock on wage inequality. To allow for the non-linearity they include a quadratic term for inward FDI stock in their econometric regression. They measure wage inequality by computing Gini and Theil indices and find that developing countries show a concave relationship between inward FDI stock and wage inequality. In contrast, wage inequality decreases with inward FDI stock for developed countries. For further research, they recommended adding a proxy for technological progress as extra control variable, which is done in this thesis. Studies on the effect of technological progress on income inequality found that increasing R&D incentives and horizontal integration have contributed to an increase in capital and high-skilled workers income (António & Osório, 2016).

2.2.2 Regional studies

Herzer and Nunnenkamp (2013), Herzer et al. (2014) and Chintrakarn et al. (2012) studied the effect of inward FDI stock on income inequality in European, Latin American and United States' state economies respectively[2]. In Europe, they find a negative long-run but a positive short-run effect on income inequality in Gini format. However, there are large cross-country differences in the long-run effects since they are positive for some countries. In their study on Latin American economies, they find that higher inward FDI stocks typically widen the income gaps in Latin American host countries. Again, income inequality is measured in Gini format. In the United States, FDI inflows show a significant negative effect on income inequality in the long run. However, this does not imply that FDI inflow narrows income gaps in each individual state since 21 out of 48 states do show a positive relationship between FDI inflows and income inequality. Instead of using a Gini coefficient as proxy for income inequality, in this study the percentage income share of the top 10 percent of income earners in the United States is used.

Another interesting empirical study is done by Mahutga and Bandelj (2008), who used a natural experiment of Central and Eastern Europe to determine the effect of both FDI inflows and inward FDI stock on income inequality. Their motivation for using Central and Eastern European countries lies in the fact that these countries had almost zero foreign investment prior to the fall of the communist regimes. Afterwards, they increasingly opened up to foreign investment. They mention the dualism in payments (wages) between foreign and domestic sectors as reason to assume it affects inequality and find a positive and significant short term effect of both FDI inflows and inward FDI stock on income inequality.

[2]In their study on the states of the Unites States, they used FDI inflows.

2.2.3 Income groups

As can be derived from the mentioned empirical literature, there seems to exist a – whether positive or negative – empirical effect of inward FDI stock on income inequality. However, in general these empirical studies mainly focused on whether such an effect exists and not so much on which income groups of the population are mostly positively or negatively affected. This thesis extends the literature by focusing more on the components of the income inequality using the study of Roine et al. (2009) as baseline, who studied the long-run determinants of income inequality. They focused on three groups of income earners: the rich, the upper middle class and the rest of the population using the Atkinson-Piketty dataset. They define "rich" as the population in the top one decile of the income distribution, whose income consists mainly of capital income. The "upper middle class" consists of the population between the 90th and 99th percentile of the income distribution, whose income consists mainly of high wages. The income of the rest of the population (up to the 90th percentile of the income distribution) consists mainly of labour income. Their main results showed that high economic growth and financial development positively influence the income shares of the rich at the expense of the rest of the population. They did not include a proxy for FDI as a variable in their model, which is an opportunity for this thesis.

2.2.4 Tax on capital

Yagan (2015) analysed the effect of the 2003 dividend tax cut in the United States on investment and labour earnings. The tax reform act reduced the federal income tax rate on dividend from 38.6 percent to 15 percent. The arguments for the dividend tax cut were similar to the arguments that have been given in the Netherlands: it would provide support to investment and capital to build more factories and create more employment. Yagan (2015) finds no significant effect of the dividend tax on investment: the elasticity of investment to dividend tax rate seems to have a coefficient of 0.00. Moreover, the author finds a negative relationship between the dividend tax cut and employee compensation.

Another study on the United States dividend tax cut of 2003 is done by Peretto (2011). The author firstly develops a dynamic general equilibrium model and afterwards carries out the quantitative analysis on the dividend tax cut. The most important findings are as follows: the dividend tax cut contributes to an increase in saving ratio but over time to a graduate fall; it contributes to an increase in employment ratio but over time to a graduate fall; and it contributes to a decrease in income growth and over time to even a bigger fall. Overall, the author found a total welfare loss of 19.34 percent due to the dividend tax cut.

Finally, Alstadsæter, Jacob, and Michaely (2017) studied the effect of Sweden's 2006 dividend tax cut on corporate investment. Depending on the type of corporation, the dividend tax cut consisted of either 5 or 10 percentage points. Based on a difference-in-difference approach, the main conclusion of this study is that the dividend tax cut did not affect aggregate investment. However, it did affect the

allocation of corporate investment. Cash-constrained firms increased investment after the dividend tax cut relative to cash-rich firms.

2.2.5 Summary

To summarise the empirical literature, most of these studies find that inward FDI stock contributes to an income gap between unskilled and skilled labour, especially in developing countries. The effect seems to be mainly short-term, since in the long-term the effect is mostly found to fade away or even reverse. Overall, the empirical studies do not find any effect of dividend tax cuts on investments in the tax cutting country.

3 Data and methodology

3.1 Data

The data used for this thesis consists of an unbalanced panel of 25 countries varying between 925 and 198 observations over the period 1980-2016. The data is annual. The list of countries included can be found in Appendix A.

I use the same data set as in Roine et al. (2009) for the historical income shares of the population in the top 0.05 percent, the top 0.1 percent, the top 0.5 percent, the top 1 percent, the top 5 percent, the top 10 percent and the bottom 90 percent intervals of the income distribution in particular countries. This data set also has data available on the countries' GDP, tariffs, financial markets and technology. The data set consists of an unbalanced panel of 25 countries during the period 1900-2006. The extensive time period and the detailed information about income shares makes this data set unique and ideal for this thesis.

To extend the data set of Roine et al. (2009) I also use the very extensive World Income Inequality Database of the University of United Nations, which has been released in January 2017. This data set provides information about net income shares per income share deciles and quantiles. Using this database, I am able to analyse the effect in the bottom shares of the population more precisely than with the data set of Roine et al. (2009), since their data set only consists of the bottom 90 percent as a whole. I include data on the income shares of the top 20 percent, the middle 60 to 80 percent, the middle 40 to 60 percent, the middle 20 to 40 percent, the bottom 80 percent, the bottom 60 percent, the bottom 40 percent, the bottom 20 percent and the bottom 10 percent intervals of the income distribution. I compute data on FDI and trade openness from the UN World Investment Report, data on tax on capital from the World Bank and data on technology from the CHAT database computed by Comin and Hobijn (2009).

The mentioned datasets do not cover information about labour and capital income shares. To include a more precise empirical test of the MacDougall (1960) model and the extension of Ruffin (1984), I use the World Inequality Database for this data. This database consists of the Atkinson-

Piketty data set that provides data on capital and labour income of the top 1 percent and the top 10 percent of the income distribution. However, it has to be noted that the data on the top 1 percent is only available for 8 countries and on the top 10 percent for 7 countries. The list of these countries can be found in Appendix A. Results of this model are thus based on relatively few observations. I also include data on total capital income shares of a country by using the data set of Bengtsson and Waldenström (2015).

The summary statistics can be found in Table 1. FDI is the percentage share of inward FDI stock in GDP. TAX is measured as personal income tax on grossed up dividend. The TOP, $MIDDLE$ and $BOTTOM$ percentages represent the income shares of the respective interval percentiles of the income distribution. $CAPITAL\ SHARE$ is measured as percentage of gross capital income in GDP. The values of $LABOUR\ INCOME$ and $CAPITAL\ INCOME$ of the top 1 and 10 percentages are computed from net fiscal income and GDP is GDP in current U.S. dollars. $OPENNESS\%$ is the sum of exports and imports as percentage of GDP and $TECHNOLOGY\%$ is the share of a country's population with access to the worldwide network.

The data shows considerable fluctuations of FDI with a minimum value of 0.25 percent of GDP and a maximum value of 305.3 percent of GDP. However, by looking up these data points the fluctuation seems less surprising. The minimum value of 0.25 percent is found in the year 1980 in India and the maximum amount of 305.3 percent is found in the year 2015 in Ireland. Knowing that India's FDI boom only started in the 21st century and that Ireland is well-known as tax paradise, the fluctuations seem legit.

Fluctuation is also found for TAX. Tax on capital fluctuates between 10 and 85 percent. The 10 percent tax rate is found in Japan from 2004 to 2012 and the 85 percent tax rate is found in Sweden in 1981 and 1982. It has to be noted that TAX does not change frequently in a country over time, but rather experiences a couple of changes in the used time period that hold for an x number of years.

The income shares of the different intervals also seem to fluctuate over countries and over time. For example, the minimum value of 0.36 percent for the $TOP\ 0.1\%$ is found in the year 1988 in Sweden, while the maximum value of 10.67 percent for the $TOP\ 0.1\%$ is found in the year 2003 in Argentina.

Table 1: Summary statistics

VARIABLES	obs.	Mean	sd	Min	Max
FDI %	922	27.74	32.81	0.252	305.3
TAX %	646	41.12	16.26	10	85
TOP 0.05%	89	1.166	0.731	0.168	3.370
TOP 0.1%	347	2.340	1.587	0.360	10.67
TOP 0.5%	305	5.687	2.739	1.600	18.94
TOP 1%	347	7.932	3.263	2.700	23.47
TOP 5%	291	19.94	4.528	10.50	31.51
TOP 10%	296	30.71	5.556	18.50	43.11
TOP 20%	272	44.10	8.731	34.70	71
MIDDLE 60-80%	272	21.90	1.636	14.20	23.70
MIDDLE 40-60%	272	15.74	2.483	7.500	18.30
MIDDLE 20-40%	272	11.51	2.700	4.700	14.60
BOTTOM 90%	272	71.26	7.977	45.80	80
BOTTOM 80%	272	55.906	8.730	29	65.4
BOTTOM 60%	272	34.01	7.332	14.80	42.40
BOTTOM 40%	272	18.27	4.927	7	24.40
BOTTOM 20%	272	6.762	2.261	2	9.900
BOTTOM 10%	272	2.565	0.997	0.600	4
CAPITAL SHARE %	555	36.07	8.294	21.70	68.20
LABOUR INCOME TOP 1%	213	2.190e+11	3.090e+11	117,510	9.995e+11
CAPITAL INCOME TOP 1%	212	2.172e+11	2.651e+11	32,597	9.874e+11
LABOUR INCOME TOP 10%	198	2.349e+11	2.811e+11	59,691	9.975e+11
CAPITAL INCOME TOP 10%	198	1.830e+11	2.629e+11	14,240	9.734e+11
GDP	925	23,305	18,923	194.8	103,059
OPENNESS %	925	60.82	34.71	11.55	221.2
TECHNOLOGY %	655	39.152	34.017	0.0001	97.298

Table 2 presents the correlation matrix of the raw versions of the explanatory variables. The correlation matrix of all variables can be found in Appendix B. Table 2 shows a correlation of 0.74 between trade openness and inward FDI stock and of 0.45 between technological progress and inward FDI stock. It is not surprising that the correlation between technological progress and FDI is positive. For example, Choi (2003) and Ko (2007) found a positive effect of internet usage on inward FDI stock in a country. The positive and strong significant correlation between trade openness and inward FDI stock is consistent with the findings of Büthe and Milner (2008) and Liargovas and Skandalis (2012) for developing countries and Aizenman and Noy (2006) for developed countries that trade openness has a significant positive effect on inward FDI stock and vice versa. Tax on capital is negatively correlated with all of the variables, which suggests that economies with low GDP, low trade openness and low technology hold high taxes on capital and the other way around. This finding is in line with the Solow growth model (Solow, 1956). Analysing Appendix B, both inward FDI stock and technological progress are positively correlated with almost all of the dependent variables. The correlation between trade openness and the income shares of the top 0.05 to the top 20 percent of the income distribution is significantly positive and from the middle 60-80 percent onward significantly negative. These observations are in contrast with the findings of Jaumotte, Lall, and Papageorgiou

(2013), who found a greater impact of technological progress than globalisation on inequality, where trade globalisation was associated with a reduction in inequality and FDI globalisation was associated with an increase in inequality.

Table 2: Correlation matrix of explanatory variables.

	FDI	**TAX**	**GDP**	**OPENNESS %**	**TECHNOLOGY %**
FDI	1.00				
TAX	-0.21	1.00			
GDP	0.43	-0.48	1.00		
OPENNESS %	0.74	-0.18	0.44	1.00	
TECHNOLOGY %	0.45	-0.36	0.74	0.34	1.00

3.2 Methodology

3.2.1 Introduction

As baseline for this thesis I use the methodology of Figini and Görg (2011) and Chintrakarn et al. (2012) in combination with Roine et al. (2009).

Firstly, I determine the effects of inward FDI stock on total income shares within different intervals of the income distribution, namely the top 0.05 percent, the top 0.1 percent, the top 0.5 percent, the top 1 percent, the top 5 percent, the top 10 percent, the top 20 percent, the middle 60 percent to 80 percent, the middle 40 percent to 60 percent, the middle 20 percent to 40 percent, the bottom 90 percent, the bottom 80 percent, the bottom 60 percent, the bottom 40 percent, the bottom 20 percent and the bottom 10 percent. Thus, the first part of this thesis consists of 16 different models. In the first part of this thesis the first, third and fourth hypothesis will be discussed:

H_1: An increase in inward FDI stock increases income inequality by hurting the poorest and benefitting the richest income groups.

H_3: Tax on capital negatively (positively) influences the positive (negative) effect of inward FDI stock on income shares.

H_4: The effect of inward FDI stock on income inequality is non-linear.

Secondly I determine the effect of inward FDI stock on the income components capital income and labour income for the whole population and the top 1 percent and the top 10 percent of the population. The second part of this thesis consists of 5 different models. In this part the third hypothesis will be discussed:

H_2: An increase in inward FDI stock has a negative effect on capital income and a positive effect on skilled labour income.

I conduct a panel data analysis using the following empirical estimation regression:

$$Y_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 FDI_i^2{}_t + \beta_3 TAX_{it} + \beta_4 \mathbf{X'_{it}} + \gamma_i + \mu_t + e_{it} \tag{13}$$

where in the first part of this thesis Y_{it} is the share of net income earned by the population within the above mentioned different intervals of the income distribution and in the second part of this thesis Y_{it} represents the income components capital and labour of the whole population and of the top 1 and the top 10 percent of the income distribution. FDI_{it} is inward FDI stock as a percentage of GDP in the country, TAX_{it} is the tax on dividend, $\mathbf{X'_{it}}$ is a vector of control variables also assumed to be correlated with income shares, γ_i are country fixed effects, μ_t are time fixed effects and e_{it} is the error term. I use inward FDI stock rather than FDI inflow since inward FDI stocks may capture long-run effects more effectively because of the accumulation of FDI inflows. I use FDI inward stocks as a percentage of GDP as in Figini and Görg (2011). The quadratic term for inward FDI stock is included to allow for non-linearities, which were found to exist by Figini and Görg (2011) and are in line with the Kuznets curve. As proxy for tax on capital I use personal income tax on grossed up dividend rather than other forms of tax on capital, since this proxy allows me to make a statement about the intended dividend tax abolition in the Netherlands as well. The control variables included in the vector $\mathbf{X'_{it}}$ are according to previous literature on (inward FDI stock and) income inequality, namely openness to trade, economic growth and technological progress (Figini & Görg, 2011; Roine et al., 2009). As proxy for openness to trade I use the share of the sum of exports and imports in total GDP, as proxy for economic growth the natural log of GDP and as proxy for technological progress the share of the population with access to the world wide web.

The panel variable is represented by the countries and the time variable is measured per year. I use a panel data analysis since this methodology allows to account for individual heterogeneity. It is assumable that unobserved heterogeneity across countries is present. This assumption is confirmed by exploring the within and between countries variation of the dependent variables and by performing a Breusch-Pagan Lagrange multiplier test. The null hypothesis of this test is that the variance of the unobserved fixed effects is zero. If this is the case, pooled OLS should fit the data. However, I reject the null hypothesis on a 1 percent significance level. Therefore I include country fixed effects in the baseline regression.

3.2.2 The effect of inward FDI stock on income shares

As mentioned in the introduction of this Section, in the first part of this thesis Equation 13 consists of 16 models that represent the different dependent variables used, namely the income shares of the top 0.05 percent, the top 0.1 percent, the top 0.5 percent, the top 1 percent, the top 5 percent, the top 10 percent, the top 20 percent, the middle 60 percent to 80 percent, the middle 40 percent to 60 percent, the middle 20 percent to 40 percent, the bottom 90 percent, the bottom 80 percent, the bottom 60 percent, the bottom 40 percent, the bottom 20 percent and the bottom 10 percent of the income distribution.

I conduct a Hausman (1978) test to analyse whether the unique errors are correlated with the regressors and thus if either fixed effects or random effects should be included in the regression. The null hypothesis of this test can be rejected for all of the regressions on a 10 percent significance level, suggesting the use of fixed effects in the model. If I use a significance level of 5 percent, the test suggests that only in the regression with the middle 60 to 80 percent as dependent variable random effects should be included. However, I stick to the significance level of 10 percent, since I assume that each country has - next to its inward FDI stock - its own characteristics that may influence the distribution of income shares in that country.

Next, I test the model for heteroskedasticity by performing a Wald test for group-wise heteroskedasticity. The null hypothesis of homoskedasticity can be rejected on a 1 percent significance level for all of the regressions. Since heteroskedasticity is present, I include robust standard errors into the model. Further, I test for serial correlation by performing a Wooldridge test for serial correlation in panel data and by performing an Arellano-Bond test. I find autocorrelation of order 1 for all of the regressions - except for the regression with the income share of the top 5 percent as dependent variable - and thus reject the null hypothesis of no first-order autocorrelation. I perform an Arellano-Bond (1991) test to analyse whether second-order serial correlation exists. I find no second-order serial correlation. Because of the first-order autocorrelation I cluster the errors on country level to correct for this issue.

Moreover, I analyse whether time fixed effects are present by performing an F test for joint significance. For all of the models, the null hypothesis of no time fixed effects can be rejected on a 1 percent significance level and thus time fixed effects should be included in the models.

Further, I perform a Fisher unit root test for panel data based on both Dickey-Fuller and Phillips-Perron statistics to test if there exists more than one trend in my data[3]. The Fisher test performs either augmented Dickey-Fuller or Phillips–Perron unit-root tests on each panel, depending on which of the two is specified in Stata. I choose to perform the Fisher panel unit root test on both the augmented Dickey-Fuller and Phillips-Perron statistics since the Dickey-Fuller test is one of the most commonly used tests for stationarity and the Phillips-Perron test is robust to serial correlation. As mentioned, my data suffers from serial correlation. According to both tests, the null hypothesis of all panels having a unit root cannot be rejected on a 1 percent significance level. Therefore, I cannot conclude that my data is stationary. I correct for this problem by conducting a first-differences fixed effects model. I also include the first-differences of the lagged variable of FDI, FDI^2 and TAX.

Next to the fixed effects model, I perform an Arellano-Bond Generalised Method of Moments (GMM) analysis (Arellano & Bond, 1991). The Arellano-Bond GMM estimator adds the lagged dependent variable as extra regressor to the model and corrects for endogeneity and serial correlation. My models meet the requirements for performing the Arellano-Bond GMM analysis, since my models only suffer from first-order autocorrelation and not from second-order autocorrelation. The Arellano-

[3]Since highly balanced data is needed for both the Levin–Lin–Chu test and the Harris–Tzavalis test for panel data and my data is unbalanced, I could not perform these tests. The Fisher test is the only test that does not require that there are no gaps in any panel's series.

Bond GMM estimator does not provide an R^2 in Stata. Since I would like to compare the explanatory power of the fixed effects model with the Arellano-Bond GMM model, I compute the R^2 by calculating the square of the correlation between the observed and the predicted dependent variable.

3.2.3 The effect of inward FDI stock on labour and capital income

I use the same methodology as in the previous subsection. The dependent variables in this subsection are capital income share of the whole country, the natural log of capital income of the top 1 percent and top 10 percent and the natural log of labour income of the top 1 percent and top 10 percent. Thus, this subsection consists of 5 different regressions.

The Hausman (1978) test suggests using fixed effects for the regressions with the following dependent variables: capital income of the top 1 percent and top 10 percent. For the rest of the regressions the Hausman test suggests using random effects. However, I decide to use fixed effects for all of the models for consistency purposes.

Similar to the previous subsection, heteroskedasticity is present in all of the models and thus I use robust standard errors. The Woolridge test for serial correlation suggests serial correlation only exists in the models with labour and capital income of the top 1 percent and capital income of the top 10 percent as dependent variable. However, the Arellano-Bond test finds first-order autocorrelation in all of the models. I follow the results of the Arellano-Bond test for serial correlation by clustering the standard errors by country for all of the models.

Next I test for the presence of time fixed effects. In contrast with the previous subsection, not all of the models suffer from time fixed effects. I find no time fixed effects in the model with labour income of the top 10 percent as dependent variables. However, I include time fixed effects in all the models for consistency purposes as well.

I find non-stationarity in all of the models and thus perform a first-differences analysis. As in the previous subsection, I also perform an Arellano-Bond GMM analysis. Again, the requirements are met since according to the Arellano-Bond test the models only suffer from first-order autocorrelation and not from second-order autocorrelation.

4 Results

4.1 The effect of inward FDI stock on income shares

4.1.1 Fixed effects model with first-differences approach

Table 3 on pages 24, 25 and 26 presents the results of the country and time fixed effects analysis with first-differences approach. For each of the dependent variables I estimate a non-linear lagged model with and without technological progress due to the significant correlation of 0.45 between technological progress and inward FDI stock. Table 11 of Appendix C provides an overview of the results without

tax on capital in the model. Table 12 of Appendix D provides an overview of the results without trade openness due to the high correlation of 0.74 between trade openness and inward FDI stock. Since these results are consistent with the models with trade openness included, I decide to keep this variable in the main model.

Inward FDI stock Analysing the whole table, I find a significant effect of inward FDI stock on the income shares of the top 0.05 to the top 10 percent (column (1) to (12)), with exception for the top 5 percent (column (9) and (10)). The effect is positive for all of these income groups. The squared component of inward FDI stock is significant for the income shares of these income groups as well, but negative. Significance of the lagged component of inward FDI stock is only found for the income shares of the top 0.05 percent (column (1)), the middle 20-40 percent (column (19) and (20), the bottom 60 percent (column (25) and (26)), the bottom 40 percent (column (27) and (28)) and the bottom 10 percent (column (32)). The effect is negative for all of the income groups. The squared component of lagged inward FDI stock is significant for these income groups as well, with exception for the income shares of the bottom 10 percent.

Taking the effect on the income share of the top 0.05 percent as an example, the coefficients can be interpreted as follows: if inward FDI stock share in GDP increases with 1 percentage point from $t = 0$ to $t = 1$, the income share of the top 0.05 percent increases with 0.123 percentage point from $t = 0$ to $t = 1$. However, if inward FDI stock also increased from $t = -1$ to $t = 0$ with 1 percentage point, the top 0.05 percent of the income distribution experiences a negative effect on their income share of 0.086 percentage point at $t = 1$. Taking these results together, over a time-span of two years inward FDI stock has an overall positive effect of 0.037 percentage point on the income shares of the top 0.05 percent[4]. Over the long run, the non-linear (squared) effect of inward FDI stock is negative, which means that the positive effect will fade away over time. The shape of the effect of inward FDI stock on the income share of this group thus seems to be an inverted U-curve, which is in line with the inverted-U hypothesis of Aghion and Howitt (1998). It has to be noted that because of the considerably small coefficient, the downward effect will take place after a considerable amount of time. The coefficients are in line with the coefficients found by Figini and Görg (2011)[5]. The same is true for the shape of the lagged component of inward FDI stock, which seems to have a U-curve shape over the very long run. This means that the negative effect of the lagged component of inward FDI stock will also fade away over time. Overall, it seems that inward FDI stock has a significant positive effect on the income shares of the top 0.05 percent of the income distribution. The top 1 to the top 10 percent experience a similar effect on their income shares.

In contrast, using the effect on the income shares of the bottom 40 percent in column (27) as another example, inward FDI stock seems to have a negative effect on the income share of this group. This period's inward FDI stock does not seem to have any effect, but a 1 percentage point increase

[4] $0.123 - 0.086 = 0.037$.

[5] Figini and Görg (2011) found significant coefficients around 0.000 and -0.000.

in inward FDI stock the period before decreases the income share of this group by 0.014 percentage points. The middle 20-40 percent, the bottom 60 percent and the bottom 10 percent experience a similar effect on their income shares.

The interesting question arises on why the mentioned income groups experience different influences of inward FDI stock on their income shares. First, the characteristics of these groups have to be determined. The income groups that experience the positive significant effect are at the top of the income distribution. The income groups that experience the negative significant effect are all inside the bottom 60 percent of the income distribution. Since both the bottom 40 percent and the middle 20-40 percent experience the negative effect I assume the strongest negative effect to take place among these percentiles of the income distribution: the bottom middle class. The positive effect on the top of the income distribution can be explained by the theories of Markusen (1995), Taylor and Driffield (2005) and Aitken et al. (1996). Often, operations of foreign MNEs are more skilled-labour intensive than the operations of domestic firms in host countries. Since this way the immediate demand for skilled labour rises, MNEs might be able to put upward pressure on wages for skilled labour. Assuming that income of the top 0.05 to the top 10 percent of the income distribution is mostly skilled labour and capital income, the positive effect of FDI on their income shares is explained. The question that still remains is why the bottom middle class experiences a negative effect in their income shares. This can be explained by the theories of Ruffin (1984), Stokey (1996) and Griliches (1969). Based on the explanation of the positive effect of inward FDI stock on the income shares of the top 0.05 to the top 10 percent we know that a rise in demand for skilled labour takes place due to an increase in inward FDI stock. In the theoretical framework I explained the theory of capital-skill complementarity (Griliches, 1969). The elasticity of substitution should be higher between capital and unskilled labour than between capital and skilled labour. If capital and unskilled labour are substitutes, an increase of supply in capital will lead to a positive effect on the marginal product of skilled labour, but a negative effect on the marginal product of unskilled labour (and of capital itself). The substitutability can be interpreted as follows: unskilled labour is easily replaced by capital while skilled labour is not. Assuming that the bottom middle class of the income distribution receives mostly income from unskilled labour, the negative effect of inward FDI stock on their income shares is explained. Another explanation left is why the top income groups experience an immediate effect and the bottom middle groups a lagged effect of inward FDI stock on their income shares. By logical reasoning this is not a surprise. If an MNE invests in a foreign country there is an immediate demand for skilled labour and because of this immediate effect skilled wages are able to show a rapid adaption. The effect on the marginal return on unskilled labour is indirect since the effect takes place through the direct effect on the marginal product of capital. Hence, it seems like it takes some time before the unskilled wages adapt to the marginal return on capital after an increase in inward FDI stock has been experienced.

Tax on capital I find a significant effect of tax on capital on the income shares of only the top 0.1 to the top 10 percent of the income distribution. The effect is negative. The lagged component of

tax on capital is only significant for the top 0.1 to the top 5 percent of the income distribution in the models without technological progress (column (3), (5), (7) and (9)). The effect is negative as well.

Taking the top 0.1 percent (column (3)) as an example the effect can be interpreted as follows: If tax on capital rises with 1 percentage point at $t = 0$, the income share of the top 0.1 percent will decrease with 0.021 percentage points at $t = 1$. However, if tax on capital also increased with 1 percentage point from $t = -1$ to $t = 0$ it will also have a negative effect on the income share at $t = 1$, namely a negative effect of an extra 0.008 percentage points. Thus the overall negative effect of tax on capital on the income shares of the top 0.1 percent is 0.029 percentage points over a two-year time span. Looking at the data I observe that tax on dividend does not fluctuate every year, but rather changes at one moment per an x number of years. Thus, having both the lagged component and the normal component in the model will not apply much in the real world, but one of the two would. If we take the Netherlands as an example, which is having a dividend tax of 25 percent at the moment, according to the model the top 0.1 percent would gain 0.5 percentage points in income share as a result of a complete abolition[6]. Having a historical income share mean of 1.07 percent, this group would thus experience an income share gain of 46.7 percent[7], which is considerably high.

Assuming that mostly the population in the top income shares holds capital income, it is no surprise that only the top income shares are affected by tax on capital. The question remains why out of the top income shares, the top of the top, namely the income shares of the top 0.05 percent are not affected by tax on capital. This might be explained by tax avoidance and/or tax evasion by this group.

Table 11 in Appendix C shows the results of the model without tax on capital. Looking at the effect of inward FDI stock on the income shares of the top 0.1 to the top 10 percent (column (3) to (12)), we see that the positive effect is only marginally higher than with tax on capital in the model. For example, the top 0.1 percent experiences a positive effect of 0.0312 in column (3) of Table 3, the model with tax on capital. In the model without tax on capital this effect is upgraded to 0.0365. Thus the difference in effect of inward FDI stock on the top income shares with and without tax on capital is negligible. The model would not suffer from omitted variable bias if tax on capital was not included in the model. However, without tax on capital the top income groups would experience the total positive effect of inward FDI stock on their income shares. If tax on capital is present, the positive effect is dampened and in some cases even muted.

Other variables An additional observation of this section is that GDP seems to have a significant positive effect on the income shares of only the bottom 40 to the bottom 20 percent of the income distribution. The finding of GDP growth reducing income inequality is in line with the work of Choi (2006), who found that GDP growth has a positive effect on the Gini coefficient. The interesting question arises on why only these groups - the poorest parts of the population - are positively affected

[6] $0.0206 \times 25 = 0.5$

[7] $\frac{(1,57-1,07)}{1,07} \times 100\% = 46.7\%$

by an increase in GDP. This can be explained by the fact that GDP increase reflects the economic growth and development in a country. The better the economy, the more upward pressure on (also) the low-skill wages. If for example minimum wages rise because of growth in GDP per capita, the income shares of these bottom groups will rise as well. Another explanation could be that more people in the bottom income shares will become employed as a result of GDP growth. This way, GDP might also be able to have a positive effect on the income shares of the poorest parts of the population. Thus, economic growth seems to be most important for the poorest parts of the population.

Trade openness and technological progress seem to have no effect on income shares at all[8], whereas Figini and Görg (2011) suggested further researchers to include a proxy for technology for a better model on inward FDI stock and income inequality. The lack of effect could be explained by the relatively few non-OECD countries in my data set. I measure technological progress as percentage of users of the world wide web and I use data from 1980 onward. If most of the OECD countries experienced similar developments of percentages of internet users, this variable would not capture the effect. Thus, either a database with more variation in countries is needed or another proxy for technological progress that differs among the countries in the database.

The fact that trade openness does not influence any of the income shares, is more questionable. This could also be explained by the fact that the sample mainly consists of OECD countries. From 1980 onward, no big changes have been observed in trade openness patterns for this countries. Thus, one should use a sample with more differences in trade openness to be able to determine the effect better.

As a last remark it has to be noted that R^2 is decreasing with income share. This implies that the model is better in explaining inequality at the top than at the bottom. Thus, it should be taken into account that in order to be able to explain the effect of inward FDI stock on the bottom income shares more sufficiently, extra variables are needed. However, to find out which variables miss, is out of scope for this thesis.

Summary To summarise, I find in general that an increase in inward FDI stock increases income inequality through the following mechanism: it increases the income shares of the top 0.05 to the top 10 percent of the income distribution and its lagged component decreases the income shares of the bottom 40 percent. Hence, the results support the first hypothesis:

H_1: An increase in inward FDI stock increases income inequality by hurting the poorest and benefitting the richest income groups.

The effect of inward FDI stock on income shares only changes marginally when tax on capital is added to the model. Tax on capital dampens and in some cases even mutes the positive effect of

[8] An exception for this observation is found for the top 0.1 percent, where trade openness seems to have a positive significant effect of 0.0177 and for the top 10 percent, where technology seems to have a negative effect of 0.148.

inward FDI stock on the income shares of the top 0.05 to the top 10 percent. Thus, the results support the third hypotheses:

H_3: Tax on capital negatively (positively) influences the positive (negative) effect of inward FDI stock on income shares.

The squared component of inward FDI stock is significantly negative with coefficients close to zero, which means that it takes a considerable amount of time before the above mentioned mechanisms reverse. Thus, the positive (negative) effect of inward FDI stock on the income shares of the richest (poorest) parts of the population do not seem to fade away over a short period of time. Since the squared effect is found, the following hypothesis is also supported by the results:

H_4: The effect of inward FDI stock on income inequality is non-linear.

Another interesting finding of this section is that GDP only influences the income shares of the bottom 40 to the bottom 10 percent of the income distribution. The effect is positive, which suggests that economic growth might be most important for the poorest parts of the population.

Table 3: The effect of FDI on income shares using a country and time fixed effects first-differences approach. This table continues on the next two pages.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent variable	Δ *INCOME SHARE %* (*per percentile of income distribution*)										
	Δ TOP 0.05%	**Δ TOP 0.05%**	**Δ TOP 0.1%**	**Δ TOP 0.1%**	**Δ TOP 0.5%**	**Δ TOP 0.5%**	**Δ TOP 1%**	**Δ TOP 1%**	**Δ TOP 5%**	**Δ TOP 5%**	**Δ TOP 10%**
Δ FDI	0.123*	0.0946**	0.0312***	0.0298**	0.0599**	0.0627**	0.0684**	0.0687**	0.0698	-0.0444	0.0872**
	(0.0466)	(0.0289)	(0.0101)	(0.0113)	(0.0228)	(0.0236)	(0.0279)	(0.0299)	(0.0486)	(0.0590)	(0.0387)
Δ FDI^2	-0.00194*	-0.00170*	-0.000106**	-0.000124*	-0.000194**	-0.000260**	-0.000212*	-0.000270*	0.000447	0.00172*	-0.000280*
	(0.000717)	(0.000711)	(0.0000363)	(0.0000576)	(0.0000809)	(0.000108)	(0.0000996)	(0.000137)	(0.000523)	(0.000839)	(0.000148)
Δ FDI_{-1}	-0.0862***	-0.0598	0.00793	0.0468	0.0235	0.0603	0.0300	0.0521	-0.0880	-0.0804	0.0443
	(0.0127)	(0.102)	(0.0124)	(0.0355)	(0.0200)	(0.0498)	(0.0256)	(0.0554)	(0.0599)	(0.124)	(0.0297)
Δ FDI^2_{-1}	0.00203***	0.00187	-0.0000257	-0.000290	-0.0000844	-0.000224	-0.000105	0.00000406	0.00222**	0.00222	-0.000167
	(0.000172)	(0.00160)	(0.0000410)	(0.000312)	(0.0000642)	(0.000505)	(0.0000817)	(0.000670)	(0.000716)	(0.00141)	(0.0000971)
Δ TAX	-0.00685	-0.0102	-0.0206***	-0.0358***	-0.0348***	-0.0604***	-0.0418***	-0.0719**	-0.0504***	-0.0846***	-0.0526***
	(0.00348)	(0.00578)	(0.00606)	(0.00789)	(0.00969)	(0.0183)	(0.0114)	(0.0240)	(0.0120)	(0.0236)	(0.0103)
Δ TAX_{-1}	-0.00845	-0.00521	-0.00799**	-0.00159	-0.0120**	-0.00219	-0.0125**	-0.00406	-0.0135*	-0.00454	-0.0126
	(0.00713)	(0.00333)	(0.00361)	(0.00355)	(0.00518)	(0.00607)	(0.00561)	(0.00769)	(0.00730)	(0.0102)	(0.00848)
Δ $lnGDP$	-0.771	-0.256	-0.00933	0.542	-0.0590	1.409	0.149	2.112	0.124	2.572	-0.364
	(0.441)	(0.833)	(0.462)	(0.760)	(0.745)	-1.378	(0.823)	-1.697	-1.026	-2.386	(0.730)
Δ *OPENNESS %*	-0.0114	-0.0122	0.00880	0.0195	0.00856	0.0403	0.0137	0.0524	0.0326	0.0849	0.0230
	(0.0124)	(0.0182)	(0.00682)	(0.0140)	(0.0119)	(0.0246)	(0.0136)	(0.0322)	(0.0345)	(0.0641)	(0.0177)
Δ *TECHNOLOGY %*		0.00907		0.0158		0.0272		0.0436		0.0138	
		(0.0224)		(0.00952)		(0.0242)		(0.0318)		(0.0289)	
CONSTANT	-0.0519	0.0295	-0.0630	-0.180*	-0.0808	-0.311*	-0.0802	-0.341*	-0.00745	-0.0561	0.0951
	(0.0871)	(0.121)	(0.0567)	(0.0937)	(0.0952)	(0.161)	(0.101)	(0.174)	(0.144)	(0.245)	(0.151)
obs.	77	44	220	122	203	113	220	122	191	108	219
R^2	0.517	0.637	0.308	0.428	0.312	0.404	0.296	0.389	0.369	0.465	0.249

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*										
	Δ **TOP 10%**	Δ **TOP 20%**	Δ **TOP 20%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 20-40%**	Δ **MIDDLE 20-40%**	Δ **BOTTOM 90%**	Δ **BOTTOM 90%**
Δ *FDI*	0.0664	0.00951	0.0153	-0.00312	-0.00464	-0.00619	-0.00871	-0.00284	-0.00461	-0.0180	-0.0249
	(0.0404)	(0.0241)	(0.0260)	(0.00914)	(0.00992)	(0.00780)	(0.00837)	(0.00666)	(0.00696)	(0.0278)	(0.0300)
Δ FDI^2	-0.000275	-0.00000779	-0.0000300	0.00000203	0.00000780	0.0000197	0.0000293	0.00000423	0.0000110	0.0000374	0.0000635
	(0.000186)	(0.0000853)	(0.0000924)	(0.0000328)	(0.0000358)	(0.0000281)	(0.0000300)	(0.0000238)	(0.0000247)	(0.0000990)	(0.000107)
Δ FDI_{-1}	0.0348	0.0162	0.0215	-0.0000113	-0.00139	-0.00534	-0.00763	-0.00668*	-0.00828**	-0.0210	-0.0272
	(0.0586)	(0.0135)	(0.0137)	(0.00582)	(0.00593)	(0.00516)	(0.00483)	(0.00335)	(0.00313)	(0.0173)	(0.0170)
Δ FDI^2_{-1}	0.000364	-0.0000502	-0.0000652	-0.00000243	0.00000148	0.0000190	0.0000255*	0.0000223*	0.0000269**	0.0000674	0.0000851
	(0.000724)	(0.0000449)	(0.0000452)	(0.0000197)	(0.0000199)	(0.0000146)	(0.0000137)	(0.0000110)	(0.0000104)	(0.0000580)	(0.0000566)
Δ *TAX*	-0.0928***	0.00612	0.00530	-0.00704	-0.00683	0.000759	0.00112	0.00331	0.00357	-0.00917	-0.00820
	(0.0267)	(0.0102)	(0.00894)	(0.00503)	(0.00483)	(0.00446)	(0.00410)	(0.00434)	(0.00421)	(0.0131)	(0.0118)
Δ TAX_{-1}	0.00130	0.00388	0.00473	0.00235	0.00213	-0.00623	-0.00660	-0.00520	-0.00546	-0.00274	-0.00375
	(0.0103)	(0.0168)	(0.0158)	(0.00321)	(0.00287)	(0.00688)	(0.00658)	(0.00532)	(0.00500)	(0.0165)	(0.0152)
Δ *lnGDP*	2.238	-1.856	-1.829	0.137	0.130	0.314	0.302	0.437	0.429	1.814	1.782
	(1.618)	(1.488)	(1.492)	(0.518)	(0.512)	(0.667)	(0.658)	(0.283)	(0.293)	(1.585)	(1.595)
Δ *OPENNESS %*	0.0721*	-0.00502	-0.00702	-0.000387	0.000133	0.00253	0.00339	-0.000144	0.000463	0.00829	0.0106
	(0.0355)	(0.0122)	(0.0134)	(0.00445)	(0.00500)	(0.00528)	(0.00570)	(0.00321)	(0.00339)	(0.0140)	(0.0157)
Δ *TECHNOLOGY %*	0.0661		0.0526		-0.0137		-0.0228*		-0.0160*		-0.0620
	(0.0506)		(0.0432)		(0.0136)		(0.0109)		(0.00828)		(0.0395)
CONSTANT	-0.135	-0.429	-0.570	0.0968	0.134	0.181	0.242	0.0700	0.113	0.492	0.659
	(0.209)	(0.431)	(0.484)	(0.120)	(0.145)	(0.167)	(0.182)	(0.105)	(0.112)	(0.424)	(0.478)
obs.	121	152	152	152	152	152	152	152	152	152	152
R^2	0.351	0.169	0.194	0.179	0.191	0.197	0.240	0.197	0.231	0.181	0.209

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(23)	(24)	(25)	(26)	(27)	28)	(29)	(30)	(31)	(32)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*									
	Δ **BOTTOM 80%**	Δ **BOTTOM 80%**	Δ **BOTTOM 60%**	Δ **BOTTOM 60%**	Δ **BOTTOM 40%**	Δ **BOTTOM 40%**	Δ **BOTTOM 20%**	Δ **BOTTOM 20%**	Δ **BOTTOM 10%**	Δ **BOTTOM 10%**
Δ FDI	-0.00679	-0.0128	-0.00367	-0.00817	0.00252	0.000542	0.00536	0.00515	0.00671	0.00667
	(0.0241)	(0.0258)	(0.0165)	(0.0175)	(0.0107)	(0.0111)	(0.00632)	(0.00643)	(0.00469)	(0.00476)
Δ FDI^2	-0.00000182	0.0000211	-0.00000385	0.0000133	-0.0000235	-0.0000160	-0.0000277	-0.0000270	-0.0000267	-0.0000265
	(0.0000853)	(0.0000916)	(0.0000587)	(0.0000620)	(0.0000378)	(0.0000394)	(0.0000224)	(0.0000229)	(0.0000170)	(0.0000173)
Δ FDI_{-1}	-0.0173	-0.0228	-0.0173*	-0.0214**	-0.0120*	-0.0138**	-0.00532	-0.00551	-0.00359	-0.00363*
	(0.0136)	(0.0134)	(0.00957)	(0.00931)	(0.00581)	(0.00576)	(0.00388)	(0.00375)	(0.00207)	(0.00205)
Δ FDI^2_{-1}	0.0000555	0.0000710	0.0000579*	0.0000695**	0.0000389*	0.0000440**	0.0000166	0.0000172	0.00000997	0.0000101
	(0.0000454)	(0.0000444)	(0.0000319)	(0.0000311)	(0.0000205)	(0.0000204)	(0.0000132)	(0.0000129)	(0.00000588)	(0.00000574)
Δ TAX	-0.00518	-0.00433	0.00186	0.00250	0.00110	0.00138	-0.00221	-0.00219	-0.00182	-0.00181
	(0.0121)	(0.0109)	(0.0107)	(0.0102)	(0.00708)	(0.00690)	(0.00319)	(0.00315)	(0.00145)	(0.00146)
Δ TAX_{-1}	-0.00816	-0.00905	-0.0105	-0.0112	-0.00428	-0.00458	0.000918	0.000887	0.00143	0.00142
	(0.0158)	(0.0148)	(0.0131)	(0.0125)	(0.00685)	(0.00661)	(0.00259)	(0.00264)	(0.00208)	(0.00210)
Δ $lnGDP$	1.778	1.750	1.641	1.620	1.328**	1.318*	0.891*	0.890*	0.527*	0.527*
	(1.382)	(1.389)	(0.984)	(1.002)	(0.606)	(0.629)	(0.479)	(0.484)	(0.294)	(0.295)
Δ $OPENNESS$ %	0.00214	0.00420	0.00253	0.00407	-0.00000561	0.000673	0.000139	0.000210	0.000339	0.000354
	(0.0127)	(0.0141)	(0.00969)	(0.0104)	(0.00570)	(0.00589)	(0.00359)	(0.00363)	(0.00304)	(0.00307)
Δ $TECHNOLOGY$ %		-0.0544		-0.0407		-0.0179		-0.00188		-0.000390
		(0.0401)		(0.0280)		(0.0182)		(0.0106)		(0.00487)
$CONSTANT$	0.341	0.487	0.245	0.354	0.0639	0.112	-0.00609	-0.00106	-0.0333	-0.0322
	(0.423)	(0.472)	(0.317)	(0.341)	(0.168)	(0.174)	(0.0872)	(0.0854)	(0.0524)	(0.0516)
obs.	152	152	152	152	152	152	152	152	152	152
R^2	0.173	0.200	0.187	0.216	0.186	0.200	0.171	0.172	0.142	0.142

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

4.1.2 Arellano-Bond GMM model with time fixed effects approach

Table 4 on pages 29, 30 and 31 presents the results of the Arellano-Bond GMM model with time fixed effects. The goal of analysing this model is to ensure that the previous model did not suffer from omitted variable bias due to the exclusion of the the lagged component of the dependent variable. Further, the results of the previous model could be biased due to endogeneity.

Inward FDI stock Looking at the results for the income shares of the top 0.05 to the top 10 percent, I find a significant positive effect of inward FDI stock on these income shares. This is consistent with the fixed effects analysis. The value of the coefficients is also very similar for these income groups, compared with the fixed effects model. I find that for most of these income groups the value of the coefficients is only marginally higher than in the fixed effects model. These observations suggest that the fixed effects model was not biased in presenting the effect of inward FDI stock on the income shares of the top 0.05 to the top 10 percent of the income distribution.

More interesting is to analyse the bottom parts of the income distribution. I find in this model a significant positive effect of inward FDI stock on the bottom 40, the bottom 20 and the bottom 10 percent, whereas the fixed effects model only showed a significant negative effect of the lagged component of inward FDI stock on the middle 20-40, the bottom 60 and bottom 40 percent. The lagged component is still significantly negative for these income groups. The question arises why the Arellano-Bond GMM model shows a positive effect of inward FDI stock on the bottom 40, bottom 20 and the bottom 10 percent and the fixed effects does not. As mentioned, the Arellano-Bond GMM model corrects for endogeneity and adds the lagged component of the dependent variable to the model. However, the lagged component of the dependent variable is only significant for the bottom 10 percent. Hence, I expect the issue to be caused by endogeneity. It could be that inward FDI stock is highly correlated with the error term and thus causes omitted variable bias in the fixed effects model. The significance is only on the ten percent level for the bottom 40 to the bottom 10 percent and the standard errors are marginally different in the models, with the Arellano-Bond GMM model having slightly higher standard errors. The standard errors in the fixed effects model could have captured the effect of inward FDI stock on the income shares, whereas the Arellano-Bond GMM model has filtered out the correlation with the error term.

Moreover, since my data consists of various different countries, it could be the case that the inward FDI stock consists of different types of FDI across these countries. For example, if I captured more inward FDI stock in the form of production affiliates than HQ services in my data, the positive effect on the bottom 40, bottom 20 and bottom 10 percent of the income distribution might be explained (Markusen, 1995).

Tax on capital Tax on capital only seems to significantly affect the income shares of the top 0.05 to the top 10 percent of the income distribution, which is consistent with the fixed effects model. The negative coefficients are similar to those in the fixed effects analysis. The tax now only mutes the

positive effect of inward FDI stock on the income shares of the top 10 percent (column (12)).

Other variables GDP again seems to be a positive significant influencer of the income shares of the bottom 60 to the bottom 10 percent of the income distribution. However, in contrast with the fixed effects model, GDP now also shows a significant negative effect on the income shares of the top 0.05 percent of the income distribution. This is quite consistent, since if some income groups gain significantly in income share, there should also exist groups that lose in income share. This result represents this mechanism. The more developed, and economic stable, a country is, the less is the income share of a relatively small income group in the country. Again, the finding of GDP growth leading to less income inequality is in line with previous literature (Choi, 2006).

Interesting in the Arellano-Bond GMM model is also that the variable technological progress shows significant results. It has a positive effect on the income shares of the top 10 percent of the income distribution, but a negative effect on the bottom percentiles of the income distribution. This is quite counter-intuitive since one would expect technological progress leading to less income inequality.

The lagged component of the dependent variable is significant for almost all of the income groups. The coefficients are always negative, which means that an increase in income share from $t = -1$ to $t = 0$, is associated with a decrease in income share from $t = 0$ to $t = 1$. This is not a strange result, since it indicates that there is no infinite growth in income shares, but that a stabilising mechanism takes place.

The Arellano-Bond GMM model is slightly worse in explaining inequality, since the R^2 is overall lower than in the fixed effects model. However, the explanatory power is quite comparable, since the difference in R^2 is marginal.

Summary To summarise, the Arellano-Bond GMM model shows mostly consistent results with the fixed effects model. However, next to the positive effect of inward FDI stock on top income shares, a positive effect is also found for the bottom income shares. However, this effect has a lower significance power and lower coefficients than the effect on the top income shares. Since I cannot ignore the effect found I have to adjust the conclusion made on the following hypothesis:

H_1: An increase in inward FDI stock increases income inequality by hurting the poorest and benefitting the richest income groups.

There is still enough evidence that supports the second part of the hypothesis. However, there is not enough evidence to accept the first part of the hypothesis, which expects an increase in inward FDI stock to hurt the poorest income groups of the population.

Table 4: The effect of FDI on income shares using a time fixed effects Arellano-Bond GMM approach.
This table continues on the next two pages.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent variable	INCOME SHARE % (per percentile of income distribution)										
	TOP 0.05%	**TOP 0.05%**	**TOP 0.1%**	**TOP 0.1%**	**TOP 0.5%**	**TOP 0.5%**	**TOP 1%**	**TOP 1%**	**TOP 5%**	**TOP 5%**	**TOP 10%**
$\Delta\ Y_{-1}$	-0.143	-0.0429	-0.328***	-0.394***	-0.370***	-0.485***	-0.372***	-0.485***	-0.360***	-0.503***	-0.166*
	(0.117)	(0.101)	(0.0813)	(0.111)	(0.0889)	(0.0848)	(0.0939)	(0.0830)	(0.0917)	(0.121)	(0.0929)
$\Delta\ FDI$	0.124***	0.0935***	0.0333***	0.0352***	0.0606***	0.0707***	0.0670***	0.0736***	0.0832*	-0.0332	0.0807**
	(0.0334)	(0.0174)	(0.00960)	(0.0116)	(0.0196)	(0.0215)	(0.0217)	(0.0253)	(0.0494)	(0.0575)	(0.0316)
$\Delta\ FDI^2$	-0.00192***	-0.00168***	-0.000121***	-0.000169***	-0.000209***	-0.000344***	-0.000221**	-0.000357**	0.000283	0.00156**	-0.000255**
	(0.000518)	(0.000420)	(0.0000366)	(0.0000625)	(0.0000779)	(0.000116)	(0.0000862)	(0.000145)	(0.000516)	(0.000791)	(0.000120)
$\Delta\ FDI_{-1}$	-0.0763***	-0.0589	0.0183	0.0544**	0.0463*	0.0843***	0.0575*	0.0794**	-0.0717**	-0.101	0.0591
	(0.0106)	(0.0618)	(0.0127)	(0.0258)	(0.0243)	(0.0315)	(0.0326)	(0.0399)	(0.0356)	(0.0913)	(0.0383)
$\Delta\ FDI^2_{-1}$	0.00189***	0.00184*	-0.0000509	-0.000298	-0.000147**	-0.000251	-0.000179**	-0.0000219	0.00252***	0.00311***	-0.000219*
	(0.000150)	(0.000991)	(0.0000310)	(0.000244)	(0.0000671)	(0.000452)	(0.0000907)	(0.000668)	(0.000491)	(0.00117)	(0.000122)
$\Delta\ TAX$	-0.00685***	-0.00999***	-0.0227***	-0.0322***	-0.0331***	-0.0538***	-0.0405***	-0.0644***	-0.0509***	-0.0768***	-0.0531***
	(0.00230)	(0.00304)	(0.00579)	(0.00414)	(0.00716)	(0.00943)	(0.00862)	(0.0132)	(0.0101)	(0.0119)	(0.00996)
$\Delta\ TAX_{-1}$	-0.00973*	-0.00564***	-0.0163***	-0.0114***	-0.0258***	-0.0222***	-0.0283***	-0.0275***	-0.0331***	-0.0361***	-0.0228**
	(0.00561)	(0.00107)	(0.00389)	(0.00373)	(0.00574)	(0.00626)	(0.00722)	(0.00909)	(0.00856)	(0.0119)	(0.0107)
$\Delta\ lnGDP$	-0.637**	-0.261	0.306	0.696	0.193	1.380	0.567	2.048**	0.463	2.817*	-0.1000
	(0.323)	(0.523)	(0.372)	(0.578)	(0.481)	(0.864)	(0.544)	(1.020)	(0.724)	(1.645)	(0.695)
$\Delta\ OPENNESS\ \%$	-0.0115	-0.0129	0.0103	0.0161	0.0103	0.0384	0.0213	0.0540	0.0522	0.107	0.0330
	(0.00795)	(0.0121)	(0.00653)	(0.0129)	(0.0118)	(0.0244)	(0.0150)	(0.0329)	(0.0405)	(0.0694)	(0.0231)
$\Delta\ TECHNOLOGY\ \%$		0.00844		0.0124*		0.0206		0.0395		0.00922	
		(0.0133)		(0.00738)		(0.0170)		(0.0242)		(0.0215)	
CONSTANT	0.111	-0.127	0.167	-0.560**	0.115	-0.0836	0.0630	-0.280	-1.607***	-2.264***	-0.200
	(0.0908)	(0.181)	(0.173)	(0.235)	(0.211)	(0.329)	(0.251)	(0.410)	(0.267)	(0.541)	(0.316)
obs.	73	40	206	108	191	101	206	108	179	96	206
R^2	0.490	0.541	0.314	0.394	0.330	0.440	0.316	0.424	0.361	0.495	0.232

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*										
	Δ **TOP 10%**	Δ **TOP 20%**	Δ **TOP 20%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 20-40%**	Δ **MIDDLE 20-40%**	Δ **BOTTOM 90%**	Δ **BOTTOM 90%**
$\Delta\ Y_{-1}$	-0.309***	-0.157**	-0.162**	-0.275***	-0.274***	-0.193***	-0.193***	-0.229***	-0.224***	-0.165***	-0.160**
	(0.113)	(0.0659)	(0.0678)	(0.0649)	(0.0686)	(0.0535)	(0.0592)	(0.0629)	(0.0702)	(0.0616)	(0.0673)
$\Delta\ FDI$	0.0662*	-0.0231	-0.0139	0.0103	0.00800	0.00167	-0.00210	0.00658	0.00416	0.0305	0.0184
	(0.0347)	(0.0195)	(0.0229)	(0.00675)	(0.00768)	(0.00921)	(0.0102)	(0.00601)	(0.00627)	(0.0234)	(0.0284)
$\Delta\ FDI^2$	-0.000344*	0.000104	0.0000714	-0.0000369	-0.0000296	-0.00000584	0.00000796	-0.0000311	-0.0000218	-0.000119	-0.0000754
	(0.000190)	(0.0000805)	(0.0000896)	(0.0000291)	(0.0000315)	(0.0000362)	(0.0000385)	(0.0000224)	(0.0000226)	(0.0000927)	(0.000108)
$\Delta\ FDI_{-1}$	0.0754	0.0278	0.0345	-0.00147	-0.00330	-0.00991	-0.0129	-0.00747	-0.00892*	-0.0288	-0.0379
	(0.0489)	(0.0223)	(0.0227)	(0.00877)	(0.00914)	(0.00845)	(0.00839)	(0.00572)	(0.00534)	(0.0284)	(0.0295)
$\Delta\ FDI^2_{-1}$	0.000117	-0.0000770	-0.0000915	0.00000265	0.00000724	0.0000318	0.0000401	0.0000175	0.0000211	0.0000894	0.000114
	(0.000708)	(0.0000923)	(0.0000882)	(0.0000353)	(0.0000357)	(0.0000334)	(0.0000326)	(0.0000230)	(0.0000212)	(0.000112)	(0.000111)
$\Delta\ TAX$	-0.0912***	0.00516	0.00392	-0.00592	-0.00643	0.000884	0.00133	0.00327	0.00385	-0.00160	-0.000711
	(0.0194)	(0.0129)	(0.0117)	(0.00588)	(0.00551)	(0.00415)	(0.00368)	(0.00416)	(0.00374)	(0.0131)	(0.0123)
$\Delta\ TAX_{-1}$	-0.0176	0.0156	0.0154	-0.00116	-0.00134	-0.00911	-0.00911	-0.00659	-0.00608	-0.00779	-0.00728
	(0.0131)	(0.0218)	(0.0186)	(0.00558)	(0.00505)	(0.00721)	(0.00604)	(0.00586)	(0.00475)	(0.0218)	(0.0197)
$\Delta\ lnGDP$	2.094*	-2.826	-2.684	0.171	0.225	0.638	0.700	0.637	0.635	3.051	2.802
	(1.197)	(1.976)	(1.878)	(0.563)	(0.588)	(0.657)	(0.670)	(0.406)	(0.393)	(1.880)	(1.773)
$\Delta\ OPENNESS\ \%$	0.0814**	0.000286	-0.00199	-0.00620	-0.00582	0.00176	0.00288	-0.00275	-0.00172	-0.00258	0.000866
	(0.0413)	(0.0182)	(0.0199)	(0.00388)	(0.00446)	(0.00840)	(0.00913)	(0.00434)	(0.00479)	(0.0162)	(0.0191)
$\Delta\ TECHNOLOGY\ \%$	0.0707		0.0742**		-0.0173		-0.0300***		-0.0224***		-0.0833**
	(0.0437)		(0.0377)		(0.0130)		(0.00884)		(0.00707)		(0.0395)
CONSTANT	-0.680	0.00179	-0.260	0.0125	0.0751	-0.0000708	0.265	0.0397	0.106	0.293	0.509
	(0.487)	(0.245)	(0.232)	(0.0672)	(0.0564)	(0.0916)	(0.175)	(0.0955)	(0.101)	(0.337)	(0.422)
obs.	108	122	122	122	122	122	122	122	122	122	122
R^2	0.356	0.123	0.153	0.211	0.219	0.119	0.161	0.154	0.187	0.142	0.169

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

	(23)	(24)	(25)	(26)	(27)	28)	(29)	(30)	(31)	(32)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*									
	Δ **BOTTOM 80%**	Δ **BOTTOM 80%**	Δ **BOTTOM 60%**	Δ **BOTTOM 60%**	Δ **BOTTOM 40%**	Δ **BOTTOM 40%**	Δ **BOTTOM 20%**	Δ **BOTTOM 20%**	Δ **BOTTOM 10%**	Δ **BOTTOM 10%**
Δ Y_{-1}	-0.155**	-0.161**	-0.115	-0.127	-0.0800	-0.101	-0.0632	-0.0792	-0.217**	-0.233**
	(0.0704)	(0.0713)	(0.0794)	(0.0776)	(0.0878)	(0.0806)	(0.0954)	(0.0911)	(0.109)	(0.116)
Δ *FDI*	0.0290	0.0197	0.0202	0.0151	0.0191*	0.0173	0.0144*	0.0140*	0.0107*	0.0100*
	(0.0202)	(0.0233)	(0.0146)	(0.0154)	(0.0107)	(0.0108)	(0.00742)	(0.00744)	(0.00591)	(0.00572)
Δ FDI^2	-0.000123	-0.0000910	-0.0000911	-0.0000725	-0.0000850**	-0.0000778**	-0.0000599**	-0.0000582**	-0.0000404**	-0.0000380**
	(0.0000818)	(0.0000894)	(0.0000560)	(0.0000566)	(0.0000373)	(0.0000371)	(0.0000269)	(0.0000271)	(0.0000198)	(0.0000192)
Δ FDI_{-1}	-0.0267	-0.0331	-0.0245	-0.0272*	-0.0143	-0.0147*	-0.00545	-0.00552	-0.00123	-0.00158
	(0.0231)	(0.0231)	(0.0156)	(0.0145)	(0.00911)	(0.00874)	(0.00440)	(0.00458)	(0.00316)	(0.00310)
Δ FDI^2_{-1}	0.0000747	0.0000883	0.0000679	0.0000720	0.0000353	0.0000343	0.0000124	0.0000119	0.000000789	0.00000163
	(0.0000958)	(0.0000905)	(0.0000633)	(0.0000563)	(0.0000328)	(0.0000302)	(0.0000136)	(0.0000140)	(0.00000944)	(0.00000909)
Δ *TAX*	-0.00197	-0.000216	0.00444	0.00657	0.00484	0.00568	0.00191	0.00197	-0.000600	-0.000689
	(0.0128)	(0.0115)	(0.0106)	(0.00965)	(0.00621)	(0.00598)	(0.00419)	(0.00416)	(0.00221)	(0.00216)
Δ TAX_{-1}	-0.0181	-0.0173	-0.0192	-0.0172	-0.00799	-0.00669	0.000619	0.000838	0.00110	0.00107
	(0.0202)	(0.0172)	(0.0151)	(0.0125)	(0.00744)	(0.00618)	(0.00351)	(0.00347)	(0.00264)	(0.00270)
Δ *lnGDP*	2.819	2.635	2.566**	2.511**	1.926***	1.887***	0.926**	0.906**	0.606**	0.609**
	(1.776)	(1.675)	(1.237)	(1.140)	(0.623)	(0.583)	(0.359)	(0.362)	(0.268)	(0.268)
Δ *OPENNESS %*	-0.00447	-0.00153	0.00134	0.00448	0.00114	0.00168	0.00184	0.00187	0.00210	0.00222
	(0.0181)	(0.0204)	(0.0151)	(0.0172)	(0.00796)	(0.00845)	(0.00412)	(0.00419)	(0.00300)	(0.00308)
Δ *TECHNOLOGY %*		-0.0757**		-0.0575**		-0.0289**		-0.00700		-0.00557**
		(0.0360)		(0.0227)		(0.0129)		(0.00604)		(0.00269)
CONSTANT	0.213	0.270	0.202	0.178	0.0471	0.0867	-0.0390	-0.0230	-0.0319	-0.0165
	(0.366)	(0.236)	(0.307)	(0.183)	(0.175)	(0.103)	(0.0999)	(0.105)	(0.0626)	(0.0603)
obs.	122	122	122	122	122	122	122	122	122	122
R^2	0.126	0.155	0.125	0.163	0.162	0.182	0.189	0.191	0.203	0.209

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

4.2 The effect of inward FDI stock on labour and capital income

Section 4.2.1 provides the results of the fixed effects model with first-differences approach and Section 4.2.2 provides the results of the time fixed effects Arellano-Bond GMM estimator.

4.2.1 Fixed effects model with first-differences approach

Table 5 presents the results of the fixed effects model with first-differences approach on the labour and capital components of total income.

Capital share Column (1) and (2) show the effect on total capital share in an economy. I find a significant effect of inward FDI stock on capital share in total income in the model with technological progress included. An increase of 1 percentage point in inward FDI stock share in GDP is associated with a decrease of 0.0397 percentage points of capital share in total income. This is the result I expected to find, since in the theoretical model of MacDougall (1960) we saw how an increase in capital led to a decrease in return on capital. The marginal return on capital becomes lower as a result of a greater supply of capital. In contrast, labour becomes the scarce factor and thus labour share in total income should increase. Based on Bengtsson and Waldenström (2015) I assume that total income in my sample consists of capital income and labour income. Thus, if capital share in total income decreases as a result of an increase in inward FDI stock, analogously one can reason that labour income in total income share increases.

Looking at the squared component of inward FDI stock, I find a positive significant coefficient both in the model with technological progress and without. This means that the relationship between inward FDI stock and capital share is non-linear and has the shape of an U-curve: at first inward FDI stock leads to a decrease in capital share in total income but later on it leads to an increase again. I have already explained that the decrease is due to the fact that the supply of capital rises and thus the marginal product on capital decreases. The question arises why after some time the capital share will increase again. An explanation could be that productivity of capital goes up after it is established for some time in a foreign country and thus more unskilled labour will be replaced with capital.

Income components Looking at the income of the richest part of the population, I only find a significant effect of inward FDI stock on the natural log of labour income of the top 1 percent. This effect is only present in the model with technological progress (column (4)). According to Ruffin (1984) one would expect labour income of the top to increase, since skilled labour and capital should be complements. However, the model shows a significant negative effect, which will become positive after some time because of the positive coefficient on the squared component of inward FDI stock. An explanation for this result could be that the inward FDI stock in my sample is a mix of FDI stock in the form of HQ services on one hand and production affiliates on the other. As mentioned by Markusen (1995) the effect of inward FDI stock on wages depends on the skill intensities of the MNEs. For example, if there is a lot of investment in manufacturing plants in a country, the demand

for unskilled labour will increase and thus wages of the unskilled will increase. If this mix of types of inward FDI stock is present in my sample, it is hard to find an effect on the labour income of different income groups.

Another explanation could be that skilled labour providers can easily migrate to other countries. If skilled labour is that mobile, skilled labour providers of the home country can move to the FDI stock receiving country and thus no significant demand will be created for skilled labour providers of the receiving country. An example could be when an MNE moves its HQ to a foreign country but wants to keep the high-placed management. The high-placed management will move with the HQ to the foreign country and only supporting staff will be hired in the foreign country. This way, no positive effect will be created on the labour income of the skilled labour providers in the FDI stock receiving country.

Trade openness An interesting finding is that trade openness has a significant positive effect on total capital share and on the labour income of the top 10 percent. This confirms the theory of Markusen (1983) that goods trade and factor movements are complements rather than substitutes.

Summary To summarise, I find that inward FDI stock negatively affects total capital share in a country. I do not find an effect on the income components of the richest parts of the population, which can be explained by the heterogeneity in types of FDI captured by the data and the mobility of skilled labour. Thus, there is not enough evidence to accept the following hypothesis:

H_2: An increase in inward FDI stock has a negative effect on capital income and a positive effect on skilled labour income.

Table 5: The effect of FDI on income components using a country and time fixed effects first-differences approach.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable	Δ CAPITAL SHARE %	Δ CAPITAL SHARE %	Δ lnLABOUR INCOME TOP 1%	Δ lnLABOUR INCOME TOP 1%	Δ lnCAPITAL INCOME TOP 1%	Δ lnCAPITAL INCOME TOP 1%	Δ lnLABOUR INCOME TOP 10%	Δ lnLABOUR INCOME TOP 10%	Δ lnCAPITAL INCOME TOP 10%	Δ lnCAPITAL INCOME TOP 10%
Δ FDI	-0.0251	-0.0397**	-0.0788	-0.223***	-0.0884	-0.0105	-0.113	-0.149	-0.124	-0.228
	(0.0145)	(0.0178)	(0.0520)	(0.0451)	(0.0687)	(0.0979)	(0.132)	(0.138)	(0.205)	(0.247)
Δ FDI^2	0.000139**	0.000228**	0.00125	0.00379***	0.00137	0.0000711	0.00225	0.00298	0.00217	0.00385
	(0.0000542)	(0.0000793)	(0.000886)	(0.000904)	(0.00103)	(0.00145)	(0.00243)	(0.00268)	(0.00359)	(0.00440)
Δ FDI_{-1}	0.0254	0.0155	-0.0375	-0.0588	-0.0822	-0.0225	0.0314	0.0517	0.184	0.240
	(0.0183)	(0.0173)	(0.106)	(0.0905)	(0.0604)	(0.0582)	(0.0338)	(0.0337)	(0.0981)	(0.135)
Δ FDI^2_{-1}	-0.0000851	-0.0000405	0.00112	0.00124	0.00157	0.000489	-0.000369	-0.000724	-0.00343	-0.00443
	(0.0000795)	(0.0000902)	(0.00221)	(0.00185)	(0.00101)	(0.00105)	(0.000747)	(0.000764)	(0.00198)	(0.00271)
Δ TAX	-0.00936	-0.00932	0.00660	0.00525	-0.0218	-0.0218	-0.00966	-0.0168	-0.00851*	-0.0190*
	(0.00948)	(0.0130)	(0.0252)	(0.0250)	(0.0204)	(0.0127)	(0.00735)	(0.0143)	(0.00419)	(0.00839)
Δ TAX_{-1}	-0.00414	-0.0177	0.00528	-0.00110	-0.00868	-0.0120*	0.00663	-0.0132	-0.00319	0.000111
	(0.00946)	(0.0175)	(0.00929)	(0.00895)	(0.0133)	(0.00553)	(0.00951)	(0.0153)	(0.0125)	(0.00966)
Δ $lnGDP$	2.529	3.663	1.772	-0.667	0.617	1.683	0.0201	-0.396	0.430	0.879
	(1.972)	(2.655)	(1.016)	(0.855)	(0.751)	(1.818)	(0.904)	(2.041)	(1.485)	(2.158)
Δ $OPENNESS$ %	0.100***	0.111***	0.0324	-0.0915	0.0791	0.0825	0.0733**	0.0645*	0.0140	-0.00174
	(0.0282)	(0.0228)	(0.0329)	(0.0528)	(0.0607)	(0.0604)	(0.0199)	(0.0293)	(0.0168)	(0.0433)
Δ $TECHNOLOGY$ %		0.0147		-0.0177		0.00325		0.0173		-0.0277
		(0.0330)		(0.0131)		(0.00776)		(0.0125)		(0.0290)
$CONSTANT$	0.844***	-0.633**	0.104	0.447	1.471*	-0.364	-0.325	0.0865	0.343	-0.374
	(0.223)	(0.241)	(0.0971)	(0.289)	(0.750)	(0.637)	(0.344)	(0.136)	(0.330)	(0.353)
obs.	427	308	186	133	185	132	177	124	177	124
R^2	0.282	0.273	0.260	0.286	0.258	0.194	0.242	0.311	0.180	0.215

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

4.2.2 Arellano-Bond GMM model with time fixed effects approach

Table 6 presents the results of the Arellano-Bond GMM model with time fixed effects approach on the labour and capital components of total income.

Capital share Looking at column (1) and (2) of the Table, I again find a negative effect of inward FDI stock on the capital share in a country. With the Arellano-Bond GMM approach, not only the model with technological progress but also the model without technological progress shows significant results. This could be explained by the significant effect of the lagged component of capital share in the model without technological progress on capital share. This variable was omitted in the fixed effects model and could have caused a bias in the results of the other variables.

Income components Similar to the fixed effects model, labour income of the top 1 percent is significantly negatively affected by inward FDI stock. As was the case with the effect on capital share, the model without technological progress now also shows significant results. This can also be explained by the omitted variable bias in the fixed effects model.

The other income components do not seem to be affected by inward FDI stock, which is consistent with the fixed effects model. However, what we do see in the Arellano-Bond GMM model, is that tax on capital seems to have a significant negative effect on fiscal capital income of the rich, which is the strongest for the capital income of the top 10 percent. The mechanism causing this effect could be that capital holders adjust their income components after an announcement of a positive change in tax on capital. As already mentioned, I use dividend tax as proxy for tax on capital. Dividend tax only changes once in a couple of years. Thus, anticipation on such a change seems realistic. Capital holders might go looking for ways in which they can transfer a part of their capital income in for example a labour income component. This mechanism could explain the negative effect on fiscal capital income. This could also be a reason for why fiscal policy is not always as effective as predicted.

Trade openness Again, the theory of goods being complementary to factors holds, as shown by the positive effect of trade openness on capital share in a country. This finding is consistent with the findings in the fixed effects model.

Summary The Arellano-Bond GMM model shows consistent results with the fixed effects model. Thus, I do not have to adjust the conclusion on the hypothesis discussed.

Table 6: The effect of FDI on income components using an Arellano-Bond GMM approach.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable	Δ CAPITAL SHARE %	Δ CAPITAL SHARE %	Δ lnLABOUR INCOME TOP 1%	Δ lnLABOUR INCOME TOP 1%	Δ lnCAPITAL INCOME TOP 1%	Δ lnCAPITAL INCOME TOP 1%	Δ lnLABOUR INCOME TOP 10%	Δ lnLABOUR INCOME TOP 10%	Δ lnCAPITAL INCOME TOP 10%	Δ lnCAPITAL INCOME TOP 10%
$\Delta\ Y_{-1}$	0.0840*	0.0302	-0.428***	-0.372***	-0.442***	-0.470***	-0.515***	-0.391***	-0.432***	-0.453***
	(0.0456)	(0.0556)	(0.101)	(0.122)	(0.0296)	(0.0380)	(0.0461)	(0.0226)	(0.0230)	(0.0264)
$\Delta\ FDI$	-0.0322**	-0.0416***	-0.0985***	-0.193***	-0.0790	-0.0188	-0.0859	-0.150	-0.119	-0.206
	(0.0148)	(0.0159)	(0.0356)	(0.0346)	(0.0541)	(0.0781)	(0.0935)	(0.113)	(0.151)	(0.168)
$\Delta\ FDI^2$	0.000171***	0.000237***	0.00150***	0.00317***	0.00121	0.000195	0.00164	0.00285	0.00221	0.00359
	(0.0000508)	(0.0000729)	(0.000491)	(0.000508)	(0.000801)	(0.00114)	(0.00181)	(0.00225)	(0.00264)	(0.00302)
$\Delta\ FDI_{-1}$	0.0242	0.0162	-0.0644	-0.0719	-0.108*	-0.0390	0.00349	0.0141	0.114	0.163
	(0.0159)	(0.0157)	(0.0746)	(0.0529)	(0.0571)	(0.0332)	(0.0571)	(0.0429)	(0.0943)	(0.133)
$\Delta\ FDI^2_{-1}$	-0.0000825	-0.0000440	0.00143	0.00128	0.00190**	0.000714	0.000228	-0.0000581	-0.00218	-0.00310
	(0.0000710)	(0.0000784)	(0.00153)	(0.00110)	(0.000934)	(0.000625)	(0.00111)	(0.000910)	(0.00197)	(0.00267)
$\Delta\ TAX$	-0.0112	-0.00939	-0.0222	-0.0283	-0.0133	-0.0146***	-0.0128***	-0.0161	-0.0254**	-0.0371***
	(0.00876)	(0.0118)	(0.0165)	(0.0196)	(0.0143)	(0.00557)	(0.00444)	(0.0104)	(0.0108)	(0.00762)
$\Delta\ TAX\_1$	-0.00583	-0.0173	0.00820	-0.00434	-0.0128	-0.0215***	0.00794	-0.0276	0.00494	0.00636
	(0.00828)	(0.0161)	(0.0101)	(0.0102)	(0.0134)	(0.00579)	(0.0120)	(0.0184)	(0.00550)	(0.00953)
$\Delta\ lnGDP$	2.694	3.397	2.826***	0.884	-0.361	1.165**	-1.213*	-0.505	1.254	1.831
	(2.035)	(2.478)	(0.668)	(0.759)	(1.332)	(0.469)	(0.648)	(1.357)	(1.412)	(1.852)
$\Delta\ OPENNESS\ \%$	0.0992***	0.110***	0.0356	-0.0808	0.0610	0.0699	-0.0305*	-0.0117	0.0535**	0.0531
	(0.0227)	(0.0194)	(0.0240)	(0.0507)	(0.0481)	(0.0426)	(0.0180)	(0.0148)	(0.0260)	(0.0348)
$\Delta\ TECHNOLOGY\ \%$		0.0159		-0.0124		0.00463		0.000163		-0.0303**
		(0.0293)		(0.0104)		(0.00946)		(0.00912)		(0.0154)
CONSTANT	-0.143	-0.183	-0.794*	0.00245	0.0814**	-0.418*	0.247	0.406	-0.567	0.0335
	(0.516)	(0.541)	(0.446)	(0.0951)	(0.0369)	(0.251)	(0.457)	(0.391)	(0.862)	(0.218)
obs.	411	291	174	121	173	120	167	114	167	114
R^2	0.296	0.277	0.369	0.354	0.410	0.332	0.412	0.375	0.338	0.371

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

4.3 Validation exercises

Firstly, as robustness check of the discussed results I conduct the same estimation as in Table 3 but for OECD countries only. I am interested in the results since differences in previous literature are found between the effect of inward FDI stock on income inequality in developing and in developed countries (Gopinath & Chen, 2003; Figini & Görg, 2011; Mahutga & Bandelj, 2008; Herzer & Nunnenkamp, 2013; Herzer et al., 2014; Chintrakarn et al., 2012). However, the differentiated model leads to very similar results, which can be found in Table 13 of Appendix E.

Furthermore I use FDI inflow as percentage of GDP rather than inward FDI stock as percentage of GDP. FDI inflows consist of the yearly direct change in capital and thus they might be more able to capture the short-term effect. The results can be found in Table 14 of Appendix E. In Table 14 I find no significant results for the top 0.05 to the top 10 percent of the income distribution anymore. However, I do find a positive effect for the top 20 percent and negative effects for the middle 40-60, the middle 20-40 and the bottom 90 to the bottom 40 percent of the income distribution. Thus, the contributing effect of FDI on income inequality also exists when using FDI inflows, only through a slightly different mechanism.

Finally, I use Gini coefficients as dependent variables, which can be found in Table 15 of Appendix E. I find that only the lagged component of inward FDI stock has a significant effect on the Gini coefficient. Lagged inward FDI stock contributes positively to the Gini coefficient, which means that lagged inward FDI stock has a positive effect on income inequality. This partly confirms the discussed results in this thesis: these results found the effect on income inequality mainly in current rather than lagged inward FDI stock.

5 Discussion and conclusion

With the Netherlands almost having abolished the tax on dividend and participating in tax deals with MNEs to stimulate national investment climate and the U.S. having an even more investment focused President, it seems that the influence of MNEs in national politics is high (Giebels & Pols, 2017; Hofs, 2018; Driessen, 2017; Rizzo, 2018; Leijten, 2018). Arguments about inward FDI stock stimulating employment and this way leading to more national welfare are popular, but which income groups does inward FDI stock really affect?

This thesis analysed the effect of inward FDI stock on income distribution by using an unbalanced panel of 25 countries over the period 1980-2016. It studied how inward FDI stock affects the income shares of the top 0.05, top 0.1, top 0.5, top 1, top 5, top 10, top 20, middle 60-80, middle 40-60, middle 20-40, bottom 90, bottom 80, bottom 60, bottom 40, bottom 20 and bottom 10 percent of the income distribution. Moreover, it studied how this effect is influenced by tax on capital and how the income components capital and labour are affected by inward FDI stock. The main model consists of country and time fixed effects with first-differences approach.

The results of this thesis - based on the fixed effects analysis - suggest that inward FDI stock contributes to more income inequality by the following mechanism: inward FDI stock benefits the income shares of the top 0.05 to the top 10 percent of the income distribution, but its lagged component hurts the bottom 40 percent. This effect can be explained by capital and unskilled (skilled) labour being substitutes (complements). This way, a rise in capital contributes to a fall (rise) in demand for unskilled (skilled) labour (Ruffin, 1984; Griliches, 1969). More practically, typically MNEs look for skilled labour (Taylor & Driffield, 2005). Tax on capital dampens and in some cases even mutes the positive effect of inward FDI stock on the top income shares. Using an Arellano-Bond GMM approach for validation purposes leads to the same evidence on the effect on the income shares of the top 0.05 to the top 10 percent of the income distribution. However, this estimator also finds a positive effect of inward FDI stock on the income shares of the bottom 40, 20 and 10 percent, which suggests that the fixed effects model suffered from omitted variable bias and endogeneity. The economic explanation for this finding could be as follows: the data used consisted of a combination of inward FDI stock in the form of HQ services and production affiliates, for which different types of labour are needed (Markusen, 1995). However, analysing the inward FDI stock more deeply was out of scope for this thesis and is a recommendation for further research.

Inward FDI stock seems to affect capital share in total income of a country negatively. An explanation for this finding is that a higher supply of capital leads to a lower marginal return on capital, whereas labour experiences the reversal (MacDougall, 1960). No clear evidence is found on the effect of inward FDI stock on the income components capital and labour income of the richest income groups. This could be explained by the data on FDI being a combination of production affiliates and HQ services and by the mobility of skilled labour.

Another interesting finding is that economic growth in the form of the natural log of GDP contributes to less income inequality by positively affecting the income shares of the bottom 40 to the bottom 10 percent of the income distribution, which is in line with the work of Choi (2006), who found that GDP contributes to less income inequality.

Finally, no significant effect of technological progress on income distribution is found. This is not in line with the theory of António and Osório (2016) and the expectation of Figini and Görg (2011). A possible explanation for this contradicting finding is that the data used has been in the form of percentage users of the world wide web. Having mostly OECD countries in the sample, some other proxy for technological progress might have been better.

This thesis suffers from several limitations and thus further research is needed. Firstly, no distinction is made between types of inward FDI stock. As discussed, a difference in effect on income shares may be found while distinguishing inward FDI stock in the form of HQ services and production affiliates (Taylor & Driffield, 2005; Markusen, 1995). Since this analysis was out of scope for this thesis, no clear conclusions can be made on the effect of inward FDI stock on the poorest part of the population. Also, no distinction in skilled and unskilled labour has been made and only labour income for the top 1 and the top 10 percent of the income distribution was available. Therefore, I recommend

further researchers to include different types of inward FDI stock and more data on labour income in their studies.

Further, I use percentage of users of the world wide web as proxy for technological progress, since this data was best available. However, with a sample of mainly OECD countries from the 1980's onward, other types of measurement for technological progress might fit better to the analysis. Thus, I recommend further researchers to use other proxies of technological progress to extend the work of this thesis and the study of Figini and Görg (2011).

Moreover, although I did not find different results for the analyses without the variable trade openness, the correlation between this variable with inward FDI stock was high. GDP and technological progress also showed high correlation with inward FDI stock. Therefore, these control variables might be classified as 'bad controls' due to multicollinearity, which could have biased the results of this thesis.

Lastly, R^2 is decreasing with income shares, which suggests that variables are missing in the model to explain inequality at the bottom sufficiently. Hence, I recommend further researchers to estimate a model with more explanatory power at the bottom.

An important policy implication of this thesis is that it highly depends on the policy goals of governmental authorities if attracting inward FDI stock is the best way to go. The strongest evidence is found for the positive effect of inward FDI stock on the income shares of the top 0.05 to the top 10 percent in all of the analyses, which suggests that policy makers could be quite sure that the top percentages of the income distribution would be positively influenced by inward FDI stock in any case. However, the question if this also holds for the middle and bottom income groups is more difficult to answer. It seems like this answer depends on the type of inward FDI stock existing in the country. Thus, I would advise policy makers not to focus blindly on attracting FDI while trying to affect economic goals like employment and less income inequality, but to perform an extensive analysis of which income groups would be affected. Further, the fact that only the richest income groups are negatively affected by tax on capital, also questions the intended abolition of tax on capital and the arguments of the government in the Netherlands.

To conclude, the strongest evidence of this thesis suggests that inward FDI stock contributes to income inequality by mainly benefitting the population in the top 0.05 to the top 10 percent of the income distribution. Tax on capital can dampen or even mute this positive effect. The effect on the middle and poorer income groups depends on several circumstances and is therefore difficult to conclude on. Hence, inward FDI stock might lead to less income inequality, but it is up to today's policy makers to analyse the real effect per specific FDI case.

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Appendices

A List of countries

Table 7: List of countries that are included in the major analysis of this thesis.

EU	**non-EU**
Belgium	Australia
Denmark	Argentina
Finland	Brazil
France	Canada
Germany	China
Ireland	India
Italy	Indonesia
Netherlands	Japan
United Kingdom	New Zealand
Norway	South Africa
Portugal	United States
Spain	
Sweden	
Switzerland	

Table 8: List of countries that are included in the analysis of labour and capital income of the top 1 and top 10 percent as dependent variables.

Labour and capital income top 1 percent	**Labour and capital income top 10 percent**
Australia	Australia
Canada	Canada
France	France
Italy	Italy
Japan	Netherlands
Netherlands	Spain
Spain	
United States	

B Correlation matrix

Table 9: Correlation matrix

		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**
TOP 0.05%	**(1)**	1.00												
TOP 0.1%	**(2)**	1.00 (0.00)	1.00											
TOP	**(3)**	0.98	0.99	1.00										

0.5%		(0.00)	(0.00)										
TOP	**(4)**	0.96	0.98	1.00	1.00								
1%		(0.00)	(0.00)	(0.00)									
TOP	**(5)**	0.89	0.89	0.94	0.96	1.00							
5%		(0.00)	(0.00)	(0.00)	(0.00)								
TOP	**(6)**	0.84	0.84	0.89	0.93	0.99	1.00						
10%		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)							
TOP	**(7)**	0.15	0.88	0.90	0.91	0.70	0.65	1.00					
20%		(0.75)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)						
MIDDLE	**(8)**	-0.56	-0.79	-0.81	-0.82	-0.64	-0.58	-0.88	1.00				
60-80%		(0.19)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)					
MIDDLE	**(9)**	-0.12	-0.85	-0.88	-0.88	-0.59	-0.50	-0.99	0.92	1.00			
40-60%		(0.81)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)				
MIDDLE	**(10)**	-0.19	-0.88	-0.90	-0.91	-0.69	-0.62	-0.99	0.82	0.98	1.00		
20-40%		(0.69)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)			
BOTTOM	**(11)**	-0.24	-0.88	-0.91	-0.92	-0.75	-0.70	-1.00	0.91	0.99	0.98	1.00	
90%		(0.61)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		
BOTTOM	**(12)**	-0.16	-0.87	-0.90	-0.91	-0.70	-0.65	-1.00	0.88	0.99	0.99	1.00	1.00
80%		(0.73)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
BOTTOM	**(13)**	-0.12	-0.87	-0.90	-0.90	-0.68	-0.62	-0.99	0.82	0.98	1.00	0.99	0.99
60%		(0.80)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
BOTTOM	**(14)**	-0.12	-0.88	-0.90	-0.91	-0.71	-0.65	-0.98	0.77	0.95	0.99	0.96	0.98
40%		(0.80)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
BOTTOM	**(15)**	-0.05	-0.86	-0.89	-0.90	-0.72	-0.66	-0.95	0.69	0.91	0.97	0.93	0.95
20%		(0.92)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
BOTTOM	**(16)**	-0.00	-0.83	-0.85	-0.86	-0.66	-0.60	-0.91	0.63	0.86	0.94	0.89	0.91
10%		(1.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CAPITAL	**(17)**	0.70	0.45	0.55	0.45	0.36	0.31	0.79	-0.76	-0.81	-0.78	-0.80	-0.79
SHARE %		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
LABOUR INCOME	**(18)**	0.55	-0.19	-0.32	-0.18	-0.11	-0.05	-0.43	0.69	0.52	0.33	0.56	0.43
TOP 1%		(0.00)	(0.03)	(0.00)	(0.04)	(0.24)	(0.55)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)
CAPITAL INCOME	**(19)**	0.58	-0.17	-0.29	-0.17	-0.11	-0.06	-0.41	0.67	0.53	0.31	0.51	0.41
TOP 1%		(0.00)	(0.05)	(0.00)	(0.05)	(0.23)	(0.48)	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)	(0.00)
LABOUR INCOME	**(20)**	0.55	-0.20	-0.34	-0.20	-0.15	-0.10	-0.45	0.70	0.56	0.35	0.57	0.45
TOP 10%		(0.00)	(0.03)	(0.00)	(0.02)	(0.10)	(0.28)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
CAPITAL INCOME	**(21)**	0.61	-0.16	-0.28	-0.15	-0.08	-0.03	-0.42	0.69	0.54	0.32	0.54	0.42
TOP 10%		(0.00)	(0.09)	(0.00)	(0.10)	(0.36)	(0.71)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)
FDI	**(22)**	0.34	0.04	0.01	0.07	0.24	0.19	-0.38	0.26	0.37	0.40	0.37	0.38
		(0.00)	(0.45)	(0.84)	(0.18)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
TAX	**(23)**	-0.57	-0.44	-0.45	-0.42	-0.32	-0.25	0.04	0.03	-0.13	-0.07	-0.01	-0.04
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.57)	(0.72)	(0.06)	(0.31)	(0.87)	(0.56)
GDP	**(24)**	0.22	0.18	0.19	0.18	0.34	0.28	-0.74	0.53	0.71	0.76	0.72	0.74
		(0.03)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
OPENNESS %	**(25)**	-0.42	-0.20	-0.21	-0.19	-0.27	-0.08	-0.57	0.35	0.54	0.61	0.55	0.57
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.17)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
TECHNOLOGY %	**(26)**	0.03	0.15	0.15	0.13	0.15	0.09	-0.72	0.51	0.70	0.74	0.70	0.72
		(0.85)	(0.04)	(0.05)	(0.09)	(0.06)	(0.26)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

		(14)	**(15)**	**(16)**	**(17)**	**(18)**	**(19)**	**(20)**	**(21)**	**(22)**	**(23)**	**(24)**	**(25)**	**(26)**
BOTTOM	**(14)**	1.00												
40%														
BOTTOM	**(15)**	0.99	1.00											
20%		(0.00)												
BOTTOM	**(16)**	0.97	0.99	1.00										
10%		(0.00)	(0.00)											
CAPITAL	**(17)**	-0.76	-0.72	-0.68	1.00									
SHARE %		(0.00)	(0.00)	(0.00)										
LABOUR INCOME	**(18)**	0.19	0.06	-0.12	0.48	1.00								
TOP 1%		(0.18)	(0.67)	(0.41)	(0.00)									
CAPITAL INCOME	**(19)**	0.16	0.03	-0.15	0.55	0.98	1.00							
TOP 1%		(0.26)	(0.85)	(0.29)	(0.00)	(0.00)								
LABOUR INCOME	**(20)**	0.19	0.05	-0.13	0.44	0.99	0.99	1.00						
TOP 10%		(0.18)	(0.70)	(0.36)	(0.00)	(0.00)	(0.00)							
CAPITAL INCOME	**(21)**	0.17	0.04	-0.14	0.45	0.99	0.98	0.99	1.00					
TOP 10%		(0.23)	(0.78)	(0.34)	(0.00)	(0.00)	(0.00)	(0.00)						
FDI	**(22)**	0.41	0.41	0.40	-0.13	-0.01	0.04	0.11	0.12	1.00				
		(0.00)	(0.00)	(0.00)	(0.00)	(0.90)	(0.54)	(0.13)	(0.10)					
TAX	**(23)**	-0.02	0.03	0.07	-0.21	-0.07	-0.16	-0.05	-0.04	-0.21	1.00			
		(0.81)	(0.67)	(0.34)	(0.00)	(0.34)	(0.03)	(0.51)	(0.54)	(0.00)				
GDP	**(24)**	0.78	0.78	0.77	-0.07	-0.25	-0.19	-0.30	-0.27	0.43	-0.48	1.00		

		(0.00)	(0.00)	(0.00)	(0.10)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)			
OPENNESS %	**(25)**	0.63	0.64	0.65	-0.33	-0.12	-0.16	-0.06	-0.09	0.74	-0.18	0.44	1.00	
		(0.00)	(0.00)	(0.00)	(0.00)	(0.08)	(0.02)	(0.41)	(0.21)	(0.00)	(0.00)	(0.00)		
TECHNOLOGY %	**(26)**	0.75	0.74	0.72	-0.08	-0.08	-0.02	-0.14	-0.09	0.45	-0.36	0.74	0.34	1.00
		(0.00)	(0.00)	(0.00)	(0.14)	(0.35)	(0.78)	(0.12)	(0.29)	(0.00)	(0.00)	(0.00)	(0.00)	

C First-differences fixed effects analysis without tax on capital

Table 11: The effect of FDI on income shares using a country and time fixed effects first-differences approach. This table continues on the next two pages.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent variable						Δ *INCOME SHARE %* *(per percentile of income distribution)*					
	Δ TOP 0.05%	**Δ TOP 0.05%**	**Δ TOP 0.1%**	**Δ TOP 0.1%**	**Δ TOP 0.5%**	**Δ TOP 0.5%**	**Δ TOP 1%**	**Δ TOP 1%**	**Δ TOP 5%**	**Δ TOP 5%**	**Δ TOP 10%**
Δ *FDI*	0.131*	0.0892*	0.0365***	0.0424***	0.0636***	0.0714**	0.0720**	0.0787**	0.0799*	-0.0268	0.0966**
	(0.0430)	(0.0309)	(0.00986)	(0.0135)	(0.0197)	(0.0247)	(0.0258)	(0.0352)	(0.0368)	(0.0547)	(0.0383)
Δ FDI^2	-0.00194*	-0.00157	-0.000128***	-0.000179***	-0.000207***	-0.000286**	-0.000231**	-0.000302*	0.000196	0.00148	-0.000342**
	(0.000671)	(0.000748)	(0.0000351)	(0.0000608)	(0.0000677)	(0.000107)	(0.0000929)	(0.000152)	(0.000533)	(0.000953)	(0.000148)
Δ FDI_{-1}	-0.0896**	-0.0850	0.0126	0.0414	0.0311	0.0588	0.0394	0.0604	-0.0868	-0.117	0.0205
	(0.0174)	(0.0908)	(0.0133)	(0.0297)	(0.0208)	(0.0438)	(0.0250)	(0.0507)	(0.0610)	(0.110)	(0.0280)
Δ FDI^2_{-1}	0.00205***	0.00213	-0.0000422	-0.000271	-0.000112	-0.000264	-0.000134	-0.000136	0.00204**	0.00246	-0.0000453
	(0.0000787)	(0.00143)	(0.0000467)	(0.000272)	(0.0000710)	(0.000462)	(0.0000823)	(0.000620)	(0.000889)	(0.00140)	(0.0000863)
Δ *lnGDP*	-0.855	-0.317	-0.572	-0.798	-0.730	-0.784	-0.640	-0.796	0.0765	0.987	0.114
	(0.409)	(0.845)	(0.455)	(0.564)	(0.724)	(1.024)	(0.867)	(1.228)	(1.014)	(1.892)	(0.990)
Δ *OPENNESS %*	-0.0194	-0.0212	0.000597	0.00420	-0.00447	0.0112	0.0000887	0.0141	0.0206	0.0494	0.0164
	(0.0133)	(0.0235)	(0.00742)	(0.0160)	(0.0127)	(0.0295)	(0.0144)	(0.0326)	(0.0310)	(0.0488)	(0.0254)
Δ *TECHNOLOGY %*		0.00536		-0.00303		0.00681		0.0104		-0.00344	
		(0.0226)		(0.0119)		(0.0246)		(0.0245)		(0.0217)	
CONSTANT	-0.0628	0.160	0.0192	-0.0106	0.0837	-0.0199	0.0528	-0.0371	0.137	0.206	0.281
	(0.0603)	(0.134)	(0.0478)	(0.129)	(0.0689)	(0.235)	(0.0833)	(0.223)	(0.129)	(0.329)	(0.176)
obs.	81	44	313	168	275	148	313	168	258	140	267
R^2	0.458	0.582	0.199	0.260	0.196	0.241	0.199	0.246	0.237	0.289	0.158

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*										
	Δ **TOP 10%**	Δ **TOP 20%**	Δ **TOP 20%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 20-40%**	Δ **MIDDLE 20-40%**	Δ **BOTTOM 90%**	Δ **BOTTOM 90%**
Δ *FDI*	0.0793	0.0138	0.0198	-0.00527	-0.00712	-0.00674	-0.00940	-0.00368	-0.00531	-0.0230	-0.0296
	(0.0499)	(0.0233)	(0.0244)	(0.00912)	(0.00964)	(0.00827)	(0.00866)	(0.00594)	(0.00602)	(0.0268)	(0.0281)
Δ FDI^2	-0.000332	-0.0000230	-0.0000452	0.0000106	0.0000175	0.0000205	0.0000303	0.00000590	0.0000119	0.0000554	0.0000800
	(0.000215)	(0.0000827)	(0.0000872)	(0.0000324)	(0.0000344)	(0.0000297)	(0.0000312)	(0.0000210)	(0.0000214)	(0.0000952)	(0.000100)
Δ FDI_{-1}	-0.0320	0.0145	0.0186	-0.00148	-0.00273	-0.00605	-0.00795	-0.00544	-0.00659*	-0.0218	-0.0263
	(0.0576)	(0.0137)	(0.0137)	(0.00557)	(0.00548)	(0.00494)	(0.00471)	(0.00334)	(0.00319)	(0.0164)	(0.0158)
Δ FDI^2_{-1}	0.000786	-0.0000447	-0.0000556	0.00000254	0.00000589	0.0000224	0.0000276*	0.0000187	0.0000218*	0.0000695	0.0000817
	(0.000802)	(0.0000433)	(0.0000434)	(0.0000181)	(0.0000177)	(0.0000138)	(0.0000133)	(0.0000108)	(0.0000104)	(0.0000519)	(0.0000500)
Δ *lnGDP*	1.631	-1.338**	-1.279*	0.474***	0.454**	0.228	0.213	0.336*	0.326*	1.230**	1.168*
	(1.515)	(0.586)	(0.620)	(0.149)	(0.158)	(0.212)	(0.227)	(0.177)	(0.186)	(0.545)	(0.588)
Δ *OPENNESS %*	0.0587	-0.00819	-0.00902	0.00230	0.00255	0.00338	0.00383	-0.0000928	0.000171	0.0117	0.0126
	(0.0370)	(0.0116)	(0.0121)	(0.00439)	(0.00477)	(0.00478)	(0.00498)	(0.00298)	(0.00297)	(0.0137)	(0.0146)
Δ *TECHNOLOGY %*	0.0286		0.0530		-0.0164		-0.0237**		-0.0145*		-0.0588
	(0.0369)		(0.0389)		(0.0120)		(0.0106)		(0.00802)		(0.0365)
CONSTANT	0.279	0.504***	3.531	-0.0203	-1.473	-0.248***	-0.992	-0.270***	-0.713	-0.505**	-4.178
	(0.301)	(0.159)	-3.159	(0.0842)	-1.477	(0.0507)	(0.968)	(0.0224)	(0.536)	(0.188)	-3.702
obs.	142	202	191	202	191	202	191	202	191	202	191
R^2	0.201	0.462	0.372	0.483	0.360	0.411	0.336	0.435	0.376	0.474	0.357

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(23)	(24)	(25)	(26)	(27)	28)	(29)	(30)	(31)	(32)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*									
	Δ BOTTOM 80%	Δ BOTTOM 80%	Δ BOTTOM 60%	Δ BOTTOM 60%	Δ BOTTOM 40%	Δ BOTTOM 40%	Δ BOTTOM 20%	Δ BOTTOM 20%	Δ BOTTOM 10%	Δ BOTTOM 10%
Δ *FDI*	-0.0117	-0.0177	-0.00643	-0.0105	0.000312	-0.00115	0.00399	0.00416	0.00575	0.00583
	(0.0232)	(0.0242)	(0.0150)	(0.0154)	(0.00927)	(0.00914)	(0.00623)	(0.00594)	(0.00497)	(0.00484)
Δ FDI^2	0.0000145	0.0000366	0.00000386	0.0000191	-0.0000166	-0.0000113	-0.0000225	-0.0000232	-0.0000230	-0.0000233
	(0.0000825)	(0.0000864)	(0.0000534)	(0.0000551)	(0.0000328)	(0.0000325)	(0.0000222)	(0.0000213)	(0.0000182)	(0.0000178)
Δ FDI_{-1}	-0.0160	-0.0201	-0.0145	-0.0173*	-0.00847	-0.00938	-0.00303	-0.00278	-0.00173	-0.00161
	(0.0133)	(0.0131)	(0.00941)	(0.00916)	(0.00587)	(0.00576)	(0.00402)	(0.00383)	(0.00250)	(0.00242)
Δ FDI^2_{-1}	0.0000515	0.0000624	0.0000489	0.0000565*	0.0000265	0.0000289	0.00000782	0.00000709	0.00000307	0.00000271
	(0.0000427)	(0.0000417)	(0.0000308)	(0.0000300)	(0.0000205)	(0.0000201)	(0.0000138)	(0.0000133)	(0.00000796)	(0.00000773)
Δ *lnGDP*	1.342**	1.282**	0.867*	0.828	0.639*	0.615*	0.303	0.289	0.180*	0.173
	(0.552)	(0.590)	(0.468)	(0.490)	(0.319)	(0.323)	(0.182)	(0.181)	(0.103)	(0.103)
Δ *OPENNESS %*	0.00555	0.00639	0.00326	0.00384	-0.000125	0.0000128	-0.0000327	-0.000158	0.000655	0.000592
	(0.0121)	(0.0128)	(0.00901)	(0.00915)	(0.00585)	(0.00577)	(0.00390)	(0.00383)	(0.00321)	(0.00316)
Δ *TECHNOLOGY %*		-0.0529		-0.0365		-0.0128		0.00177		0.000839
		(0.0370)		(0.0266)		(0.0172)		(0.0101)		(0.00434)
CONSTANT	-0.716***	-3.526	-0.695***	-2.053	-0.447***	-1.061	-0.177***	-0.348***	-0.0282**	-0.146***
	(0.156)	-3.083	(0.0737)	-1.606	(0.0283)	(0.638)	(0.0147)	(0.104)	(0.0112)	(0.0185)
obs.	202	191	202	191	202	191	202	191	202	191
R^2	0.467	0.374	0.448	0.376	0.440	0.372	0.353	0.298	0.267	0.222

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

D First-differences fixed effects analysis without trade openness

Table 12: The effect of FDI on income shares using a country and time fixed effects first-differences approach without the variable trade openness. This table continues on the next two pages.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent variable						Δ *INCOME SHARE %* *(per percentile of income distribution)*					
	Δ TOP 0.05%	**Δ TOP 0.05%**	**Δ TOP 0.1%**	**Δ TOP 0.1%**	**Δ TOP 0.5%**	**Δ TOP 0.5%**	**Δ TOP 1%**	**Δ TOP 1%**	**Δ TOP 5%**	**Δ TOP 5%**	**Δ TOP 10%**
Δ FDI	0.119*	0.0829*	0.0319***	0.0289**	0.0606**	0.0604**	0.0694**	0.0665**	0.0818	-0.0279	0.0888**
	(0.0447)	(0.0280)	(0.00973)	(0.00991)	(0.0227)	(0.0206)	(0.0279)	(0.0263)	(0.0486)	(0.0480)	(0.0387)
Δ FDI^2	-0.00191*	-0.00156*	-0.000102**	-0.000109**	-0.000190**	-0.000227**	-0.000206**	-0.000231*	0.000296	0.00147*	-0.000270*
	(0.000725)	(0.000617)	(0.0000357)	(0.0000479)	(0.0000780)	(0.0000865)	(0.0000948)	(0.000110)	(0.000436)	(0.000697)	(0.000141)
Δ FDI_{-1}	-0.0903**	-0.0661	0.00803	0.0479	0.0237	0.0626	0.0302	0.0551	-0.0862	-0.0712	0.0446
	(0.0188)	(0.0891)	(0.0124)	(0.0349)	(0.0200)	(0.0494)	(0.0257)	(0.0551)	(0.0614)	(0.130)	(0.0300)
Δ FDI^2_{-1}	0.00211**	0.00195	-0.0000275	-0.000310	-0.0000867	-0.000268	-0.000108	-0.0000515	0.00219**	0.00207	-0.000172
	(0.000378)	(0.00143)	(0.0000409)	(0.000302)	(0.0000648)	(0.000493)	(0.0000833)	(0.000657)	(0.000724)	(0.00146)	(0.0001000)
Δ TAX	-0.00805*	-0.0117	-0.0198***	-0.0334***	-0.0340***	-0.0554***	-0.0407***	-0.0653***	-0.0474***	-0.0734***	-0.0507***
	(0.00290)	(0.00725)	(0.00598)	(0.00764)	(0.00938)	(0.0168)	(0.0109)	(0.0216)	(0.0109)	(0.0205)	(0.00966)
Δ TAX_{-1}	-0.00876	-0.00497	-0.00784*	-0.000936	-0.0119**	-0.000981	-0.0123*	-0.00231	-0.0128	-0.00208	-0.0122
	(0.00742)	(0.00389)	(0.00370)	(0.00353)	(0.00533)	(0.00596)	(0.00574)	(0.00743)	(0.00765)	(0.0100)	(0.00858)
Δ $lnGDP$	-0.444	0.0645	-0.191	0.166	-0.241	0.635	-0.134	1.103	-0.525	0.965	-0.840
	(0.189)	(0.442)	(0.354)	(0.633)	(0.557)	(1.194)	(0.611)	(1.403)	(0.596)	(1.787)	(0.567)
Δ $TECHNOLOGY$ %		0.00681		0.0139		0.0236		0.0385		0.00842	
		(0.0192)		(0.00885)		(0.0224)		(0.0288)		(0.0268)	
$CONSTANT$	-0.0428	0.0358	-0.0637	-0.168*	-0.0808	-0.287*	-0.0812	-0.307*	-0.00968	-0.0275	0.0932
	(0.0774)	(0.121)	(0.0549)	(0.0941)	(0.0936)	(0.152)	(0.0976)	(0.160)	(0.142)	(0.237)	(0.148)
obs.	77	44	220	122	203	113	220	122	191	108	219
R^2	0.509	0.629	0.305	0.416	0.311	0.388	0.294	0.373	0.364	0.446	0.246

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*										
	Δ **TOP 10%**	Δ **TOP 20%**	Δ **TOP 20%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 20-40%**	Δ **MIDDLE 20-40%**	Δ **BOTTOM 90%**	Δ **BOTTOM 90%**
Δ FDI	0.0633	0.00754	0.0125	-0.00327	-0.00458	-0.00520	-0.00736	-0.00289	-0.00443	-0.0148	-0.0207
	(0.0359)	(0.0218)	(0.0234)	(0.00801)	(0.00867)	(0.00743)	(0.00810)	(0.00591)	(0.00626)	(0.0250)	(0.0270)
Δ FDI^2	-0.000221	-0.000000717	-0.0000199	0.00000257	0.00000761	0.0000161	0.0000244	0.00000443	0.0000103	0.0000257	0.0000483
	(0.000155)	(0.0000773)	(0.0000831)	(0.0000288)	(0.0000313)	(0.0000270)	(0.0000292)	(0.0000212)	(0.0000222)	(0.0000894)	(0.0000966)
Δ FDI_{-1}	0.0389	0.0153	0.0202	-0.0000774	-0.00136	-0.00491	-0.00703	-0.00670*	-0.00820**	-0.0196	-0.0254
	(0.0590)	(0.0134)	(0.0133)	(0.00575)	(0.00578)	(0.00484)	(0.00438)	(0.00322)	(0.00297)	(0.0170)	(0.0163)
Δ FDI^2_{-1}	0.000287	-0.0000476	-0.0000615	-0.00000224	0.00000141	0.0000177	0.0000237*	0.0000224*	0.0000267**	0.0000633	0.0000796
	(0.000714)	(0.0000444)	(0.0000441)	(0.0000194)	(0.0000195)	(0.0000140)	(0.0000128)	(0.0000106)	(0.0000100)	(0.0000574)	(0.0000553)
Δ TAX	-0.0837***	0.00648	0.00580	-0.00702	-0.00684	0.000581	0.000874	0.00332	0.00353	-0.00976	-0.00896
	(0.0235)	(0.00992)	(0.00868)	(0.00493)	(0.00471)	(0.00431)	(0.00397)	(0.00428)	(0.00415)	(0.0128)	(0.0115)
Δ TAX_{-1}	0.00371	0.00345	0.00413	0.00232	0.00214	-0.00601	-0.00631	-0.00521	-0.00542	-0.00203	-0.00283
	(0.0102)	(0.0165)	(0.0156)	(0.00321)	(0.00288)	(0.00683)	(0.00655)	(0.00519)	(0.00489)	(0.0163)	(0.0151)
Δ $lnGDP$	0.850	-1.721	-1.641	0.147	0.126	0.246	0.211	0.441	0.416	1.592	1.497
	(1.443)	(1.342)	-(.342)	(0.494)	(0.479)	(0.548)	(0.531)	(0.257)	(0.265)	(1.434)	(1.426)
Δ $TECHNOLOGY$ %	0.0591		0.0522		-0.0137		-0.0225*		-0.0160*		-0.0614
	(0.0475)		(0.0427)		(0.0134)		(0.0108)		(0.00821)		(0.0391)
$CONSTANT$	-0.0891	-0.362	-0.138	0.102	-0.0700	0.147	0.0314	0.0720	0.0455	0.381	0.0794
	(0.182)	(0.348)	(0.199)	(0.0950)	(0.0838)	(0.111)	(0.0750)	(0.0812)	(0.0489)	(0.345)	(0.218)
obs.	121	152	152	152	152	152	152	152	152	152	152
R^2	0.330	0.169	0.194	0.179	0.191	0.197	0.239	0.197	0.231	0.180	0.208

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(23)	(24)	(25)	(26)	(27)	28)	(29)	(30)	(31)	(32)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*									
	Δ **BOTTOM 80%**	Δ **BOTTOM 80%**	Δ **BOTTOM 60%**	Δ **BOTTOM 60%**	Δ **BOTTOM 40%**	Δ **BOTTOM 40%**	Δ **BOTTOM 20%**	Δ **BOTTOM 20%**	Δ **BOTTOM 10%**	Δ **BOTTOM 10%**
Δ FDI	-0.00595	-0.0111	-0.00268	-0.00655	0.00252	0.000809	0.00541	0.00523	0.00685*	0.00681*
	(0.0218)	(0.0233)	(0.0149)	(0.0159)	(0.00915)	(0.00951)	(0.00519)	(0.00525)	(0.00378)	(0.00382)
Δ FDI^2	-0.00000483	0.0000151	-0.00000740	0.00000746	-0.0000235	-0.0000169	-0.0000279	-0.0000273	-0.0000271*	-0.0000270*
	(0.0000773)	(0.0000828)	(0.0000533)	(0.0000564)	(0.0000325)	(0.0000338)	(0.0000184)	(0.0000188)	(0.0000138)	(0.0000140)
Δ FDI_{-1}	-0.0170	-0.0221	-0.0169*	-0.0207**	-0.0120*	-0.0137**	-0.00529	-0.00547	-0.00354	-0.00357
	(0.0132)	(0.0127)	(0.00934)	(0.00892)	(0.00583)	(0.00576)	(0.00401)	(0.00389)	(0.00221)	(0.00220)
Δ FDI^2_{-1}	0.0000544	0.0000688	0.0000567*	0.0000674**	0.0000389*	0.0000437**	0.0000165	0.0000170	0.00000980	0.00000990
	(0.0000444)	(0.0000430)	(0.0000314)	(0.0000303)	(0.0000206)	(0.0000203)	(0.0000135)	(0.0000132)	(0.00000640)	(0.00000628)
Δ TAX	-0.00534	-0.00463	0.00168	0.00221	0.00110	0.00133	-0.00222	-0.00220	-0.00184	-0.00184
	(0.0118)	(0.0106)	(0.0105)	(0.00999)	(0.00704)	(0.00686)	(0.00320)	(0.00317)	(0.00152)	(0.00153)
Δ TAX_{-1}	-0.00798	-0.00868	-0.0103	-0.0108	-0.00429	-0.00452	0.000930	0.000905	0.00146	0.00145
	(0.0155)	(0.0146)	(0.0129)	(0.0123)	(0.00667)	(0.00641)	(0.00248)	(0.00251)	(0.00196)	(0.00198)
Δ $lnGDP$	1.721	1.637	1.573	1.511	1.328*	1.300*	0.887*	0.884	0.518*	0.517
	(1.236)	(1.235)	(0.898)	(0.919)	(0.623)	(0.654)	(0.497)	(0.506)	(0.293)	(0.295)
Δ *TECHNOLOGY %*		-0.0541		-0.0404		-0.0179		-0.00186		-0.000368
		(0.0397)		(0.0278)		(0.0180)		(0.0105)		(0.00482)
CONSTANT	0.313	0.160	0.211	0.230*	0.0640	0.198**	-0.00795	0.153*	-0.0378	0.0709
	(0.338)	(0.178)	(0.257)	(0.120)	(0.162)	(0.0808)	(0.0955)	(0.0798)	(0.0628)	(0.0590)
obs.	152	152	152	152	152	152	152	152	152	152
R^2	0.173	0.200	0.187	0.216	0.186	0.200	0.171	0.172	0.142	0.142

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

E Validation exercises

Table 13: The effect of FDI on income shares using a country and time fixed effects first-differences approach for OECD countries only. This table continues on the next two pages.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent variable	Δ *INCOME SHARE %* (*per percentile of income distribution*)										
	Δ TOP 0.05%	**Δ TOP 0.05%**	**Δ TOP 0.1%**	**Δ TOP 0.1%**	**Δ TOP 0.5%**	**Δ TOP 0.5%**	**Δ TOP 1%**	**Δ TOP 1%**	**Δ TOP 5%**	**Δ TOP 5%**	**Δ TOP 10%**
Δ FDI	0.123*	0.0946**	0.0312***	0.0298**	0.0599**	0.0627**	0.0684**	0.0687**	0.0698	-0.0444	0.0872**
	(0.0466)	(0.0289)	(0.0101)	(0.0113)	(0.0228)	(0.0236)	(0.0279)	(0.0299)	(0.0486)	(0.0590)	(0.0387)
Δ FDI^2	-0.00194*	-0.00170*	-0.000106**	-0.000124*	-0.000194**	-0.000260**	-0.000212*	-0.000270*	0.000447	0.00172*	-0.000280*
	(0.000717)	(0.000711)	(0.0000363)	(0.0000576)	(0.0000809)	(0.000108)	(0.0000996)	(0.000137)	(0.000523)	(0.000839)	(0.000148)
Δ FDI_1	-0.0862***	-0.0598	0.00793	0.0468	0.0235	0.0603	0.0300	0.0521	-0.0880	-0.0804	0.0443
	(0.0127)	(0.102)	(0.0124)	(0.0355)	(0.0200)	(0.0498)	(0.0256)	(0.0554)	(0.0599)	(0.124)	(0.0297)
Δ FDI^2_1	0.00203***	0.00187	-0.0000257	-0.000290	-0.0000844	-0.000224	-0.000105	0.00000406	0.00222**	0.00222	-0.000167
	(0.000172)	(0.00160)	(0.0000410)	(0.000312)	(0.0000642)	(0.000505)	(0.0000817)	(0.000670)	(0.000716)	(0.00141)	(0.0000971)
Δ TAX	-0.771	-0.256	-0.00933	0.542	-0.0590	1.409	0.149	2.112	0.124	2.572	-0.364
	(0.441)	(0.833)	(0.462)	(0.760)	(0.745)	-1.378	(0.823)	-1.697	-1.026	-2.386	(0.730)
Δ TAX_1	-0.0114	-0.0122	0.00880	0.0195	0.00856	0.0403	0.0137	0.0524	0.0326	0.0849	0.0230
	(0.0124)	(0.0182)	(0.00682)	(0.0140)	(0.0119)	(0.0246)	(0.0136)	(0.0322)	(0.0345)	(0.0641)	(0.0177)
Δ $lnGDP$	-0.00685	-0.0102	-0.0206***	-0.0358***	-0.0348***	-0.0604***	-0.0418***	-0.0719**	-0.0504***	-0.0846***	-0.0526***
	(0.00348)	(0.00578)	(0.00606)	(0.00789)	(0.00969)	(0.0183)	(0.0114)	(0.0240)	(0.0120)	(0.0236)	(0.0103)
Δ *OPENNESS % %*	-0.00845	-0.00521	-0.00799**	-0.00159	-0.0120**	-0.00219	-0.0125**	-0.00406	-0.0135*	-0.00454	-0.0126
	(0.00713)	(0.00333)	(0.00361)	(0.00355)	(0.00518)	(0.00607)	(0.00561)	(0.00769)	(0.00730)	(0.0102)	(0.00848)
Δ *TECHNOLOGY %*		0.00907		0.0158		0.0272		0.0436		0.0138	
		(0.0224)		(0.00952)		(0.0242)		(0.0318)		(0.0289)	
CONSTANT	-0.0519	0.0295	-0.0630	-0.180*	-0.0808	-0.311*	-0.0802	-0.341*	-0.00745	-0.0561	0.0951
	(0.0871)	(0.121)	(0.0567)	(0.0937)	(0.0952)	(0.161)	(0.101)	(0.174)	(0.144)	(0.245)	(0.151)
obs.	77	44	220	122	203	113	220	122	191	108	219
R^2	0.517	0.637	0.308	0.428	0.312	0.404	0.296	0.389	0.369	0.465	0.249

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*										
	Δ **TOP 10%**	Δ **TOP 20%**	Δ **TOP 20%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 20-40%**	Δ **MIDDLE 20-40%**	Δ **BOTTOM 90%**	Δ **BOTTOM 90%**
Δ *FDI*	0.0664	0.00951	0.0153	-0.00312	-0.00464	-0.00619	-0.00871	-0.00284	-0.00461	-0.0180	-0.0249
	(0.0404)	(0.0241)	(0.0260)	(0.00914)	(0.00992)	(0.00780)	(0.00837)	(0.00666)	(0.00696)	(0.0278)	(0.0300)
Δ FDI^2	-0.000275	-0.00000779	-0.0000300	0.00000203	0.00000780	0.0000197	0.0000293	0.00000423	0.0000110	0.0000374	0.0000635
	(0.000186)	(0.0000853)	(0.0000924)	(0.0000328)	(0.0000358)	(0.0000281)	(0.0000300)	(0.0000238)	(0.0000247)	(0.0000990)	(0.000107)
Δ FDI_{-1}	0.0348	0.0162	0.0215	-0.0000113	-0.00139	-0.00534	-0.00763	-0.00668*	-0.00828**	-0.0210	-0.0272
	(0.0586)	(0.0135)	(0.0137)	(0.00582)	(0.00593)	(0.00516)	(0.00483)	(0.00335)	(0.00313)	(0.0173)	(0.0170)
Δ FDI^2_{-1}	0.000364	-0.0000502	-0.0000652	-0.00000243	0.00000148	0.0000190	0.0000255*	0.0000223*	0.0000269**	0.0000674	0.0000851
	(0.000724)	(0.0000449)	(0.0000452)	(0.0000197)	(0.0000199)	(0.0000146)	(0.0000137)	(0.0000110)	(0.0000104)	(0.0000580)	(0.0000566)
Δ *TAX*	2.238	-1.856	-1.829	0.137	0.130	0.314	0.302	0.437	0.429	1.814	1.782
	-1.618	-1.488	-1.492	(0.518)	(0.512)	(0.667)	(0.658)	(0.283)	(0.293)	-1.585	-1.595
Δ TAX_1	0.0721*	-0.00502	-0.00702	-0.000387	0.000133	0.00253	0.00339	-0.000144	0.000463	0.00829	0.0106
	(0.0355)	(0.0122)	(0.0134)	(0.00445)	(0.00500)	(0.00528)	(0.00570)	(0.00321)	(0.00339)	(0.0140)	(0.0157)
Δ *lnGDP*	-0.0928***	0.00612	0.00530	-0.00704	-0.00683	0.000759	0.00112	0.00331	0.00357	-0.00917	-0.00820
	(0.0267)	(0.0102)	(0.00894)	(0.00503)	(0.00483)	(0.00446)	(0.00410)	(0.00434)	(0.00421)	(0.0131)	(0.0118)
Δ *OPENNESS % %*	0.00130	0.00388	0.00473	0.00235	0.00213	-0.00623	-0.00660	-0.00520	-0.00546	-0.00274	-0.00375
	(0.0103)	(0.0168)	(0.0158)	(0.00321)	(0.00287)	(0.00688)	(0.00658)	(0.00532)	(0.00500)	(0.0165)	(0.0152)
Δ *TECHNOLOGY %*	0.0661		0.0526		-0.0137		-0.0228*		-0.0160*		-0.0620
	(0.0506)		(0.0432)		(0.0136)		(0.0109)		(0.00828)		(0.0395)
CONSTANT	-0.135	-0.429	-0.570	0.0968	0.134	0.181	0.242	0.0700	0.113	0.492	0.659
	(0.209)	(0.431)	(0.484)	(0.120)	(0.145)	(0.167)	(0.182)	(0.105)	(0.112)	(0.424)	(0.478)
obs.	121	152	152	152	152	152	152	152	152	152	152
R^2	0.351	0.169	0.194	0.179	0.191	0.197	0.240	0.197	0.231	0.181	0.209

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(23)	(24)	(25)	(26)	(27)	28)	(29)	(30)	(31)	(32)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*									
	Δ **BOTTOM 80%**	Δ **BOTTOM 80%**	Δ **BOTTOM 60%**	Δ **BOTTOM 60%**	Δ **BOTTOM 40%**	Δ **BOTTOM 40%**	Δ **BOTTOM 20%**	Δ **BOTTOM 20%**	Δ **BOTTOM 10%**	Δ **BOTTOM 10%**
Δ FDI	-0.00679	-0.0128	-0.00367	-0.00817	0.00252	0.000542	0.00536	0.00515	0.00671	0.00667
	(0.0241)	(0.0258)	(0.0165)	(0.0175)	(0.0107)	(0.0111)	(0.00632)	(0.00643)	(0.00469)	(0.00476)
Δ FDI^2	-0.00000182	0.0000211	-0.00000385	0.0000133	-0.0000235	-0.0000160	-0.0000277	-0.0000270	-0.0000267	-0.0000265
	(0.0000853)	(0.0000916)	(0.0000587)	(0.0000620)	(0.0000378)	(0.0000394)	(0.0000224)	(0.0000229)	(0.0000170)	(0.0000173)
Δ FDI_{-1}	-0.0173	-0.0228	-0.0173*	-0.0214**	-0.0120*	-0.0138**	-0.00532	-0.00551	-0.00359	-0.00363*
	(0.0136)	(0.0134)	(0.00957)	(0.00931)	(0.00581)	(0.00576)	(0.00388)	(0.00375)	(0.00207)	(0.00205)
Δ FDI^2_{-1}	0.0000555	0.0000710	0.0000579*	0.0000695**	0.0000389*	0.0000440**	0.0000166	0.0000172	0.00000997	0.0000101
	(0.0000454)	(0.0000444)	(0.0000319)	(0.0000311)	(0.0000205)	(0.0000204)	(0.0000132)	(0.0000129)	(0.00000588)	(0.00000574)
Δ TAX	1.778	1.750	1.641	1.620	1.328**	1.318*	0.891*	0.890*	0.527*	0.527*
	-1.382	-1.389	(0.984)	-1.002	(0.606)	(0.629)	(0.479)	(0.484)	(0.294)	(0.295)
Δ TAX_1	0.00214	0.00420	0.00253	0.00407	-0.00000561	0.000673	0.000139	0.000210	0.000339	0.000354
	(0.0127)	(0.0141)	(0.00969)	(0.0104)	(0.00570)	(0.00589)	(0.00359)	(0.00363)	(0.00304)	(0.00307)
Δ $lnGDP$	-0.00518	-0.00433	0.00186	0.00250	0.00110	0.00138	-0.00221	-0.00219	-0.00182	-0.00181
	(0.0121)	(0.0109)	(0.0107)	(0.0102)	(0.00708)	(0.00690)	(0.00319)	(0.00315)	(0.00145)	(0.00146)
Δ $OPENNESS\ \%\ \%$	-0.00816	-0.00905	-0.0105	-0.0112	-0.00428	-0.00458	0.000918	0.000887	0.00143	0.00142
	(0.0158)	(0.0148)	(0.0131)	(0.0125)	(0.00685)	(0.00661)	(0.00259)	(0.00264)	(0.00208)	(0.00210)
Δ $TECHNOLOGY\ \%$		-0.0544		-0.0407		-0.0179		-0.00188		-0.000390
		(0.0401)		(0.0280)		(0.0182)		(0.0106)		(0.00487)
$CONSTANT$	0.341	0.487	0.245	0.354	0.0639	0.112	-0.00609	-0.00106	-0.0333	-0.0322
	(0.423)	(0.472)	(0.317)	(0.341)	(0.168)	(0.174)	(0.0872)	(0.0854)	(0.0524)	(0.0516)
obs.	152	152	152	152	152	152	152	152	152	152
R^2	0.173	0.200	0.187	0.216	0.186	0.200	0.171	0.172	0.142	0.142

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 14: The effect of FDI on income shares using a country and time fixed effects first-differences approach using FDI inflow instead of FDI stock. This table continues on the next two pages.

Time dummies are not presented in this table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent variable						Δ *INCOME SHARE %* *(per percentile of income distribution)*					
	Δ TOP 0.05%	**Δ TOP 0.05%**	**Δ TOP 0.1%**	**Δ TOP 0.1%**	**Δ TOP 0.5%**	**Δ TOP 0.5%**	**Δ TOP 1%**	**Δ TOP 1%**	**Δ TOP 5%**	**Δ TOP 5%**	**Δ TOP 10%**
Δ $FDIinflow$	-0.0175	-0.0307*	0.0193	0.00467	0.0400	0.0170	0.0570	0.0316	0.0669	0.0539	0.0379
	(0.0102)	(0.0107)	(0.0314)	(0.0323)	(0.0611)	(0.0615)	(0.0713)	(0.0728)	(0.115)	(0.124)	(0.0857)
Δ $FDIinflow^2$	0.000130	0.0000468	-0.000610	-0.000533	-0.00125	-0.00116	-0.00165	-0.00159	-0.00162	-0.00259	-0.00299
	(0.000297)	(0.000174)	(0.000575)	(0.000487)	(0.00120)	(0.00102)	(0.00166)	(0.00144)	(0.00181)	(0.00258)	(0.00230)
Δ $FDIinflow_{-1}$	-0.0186*	-0.0274**	0.0113	0.00317	0.0264	0.0151	0.0231	0.00972	0.0449	0.0417	0.0338
	(0.00606)	(0.00565)	(0.0177)	(0.0193)	(0.0306)	(0.0335)	(0.0357)	(0.0374)	(0.0509)	(0.0567)	(0.0430)
Δ $FDIinflow^2_{-1}$	0.000304	0.000640	-0.000244	0.0000855	-0.000298	0.000152	-0.000270	0.000221	-0.00265	-0.00260	0.000254
	(0.000480)	(0.000810)	(0.000369)	(0.000430)	(0.000705)	(0.000776)	(0.000952)	(0.00100)	(0.00370)	(0.00405)	(0.00123)
Δ TAX	-0.0107	-0.0179**	-0.0204***	-0.0315***	-0.0340***	-0.0531***	-0.0403***	-0.0627***	-0.0458***	-0.0701***	-0.0517***
	(0.00606)	(0.00448)	(0.00531)	(0.00627)	(0.00817)	(0.0152)	(0.00953)	(0.0194)	(0.00927)	(0.0166)	(0.00867)
Δ TAX_{-1}	-0.00896	-0.000642	-0.00946**	-0.00262	-0.0149**	-0.00270	-0.0162**	-0.00583	-0.0169	0.000122	-0.0166
	(0.00825)	(0.00457)	(0.00400)	(0.00264)	(0.00655)	(0.00428)	(0.00697)	(0.00605)	(0.00997)	(0.00947)	(0.0116)
Δ $lnGDP$	-0.866	0.120	0.131	1.026*	0.311	2.155	0.562	2.837	0.0941	2.624	0.270
	(0.569)	(0.478)	(0.413)	(0.575)	(0.703)	(1.211)	(0.829)	-1.656	(0.857)	(1.745)	(0.762)
Δ $OPENNESS$ %	-0.000578	0.00816	0.0167**	0.0215*	0.0259*	0.0420*	0.0339*	0.0549*	0.0330	0.0434	0.0506**
	(0.0121)	(0.0230)	(0.00675)	(0.0121)	(0.0143)	(0.0205)	(0.0173)	(0.0269)	(0.0224)	(0.0375)	(0.0215)
Δ $TECHNOLOGY$ %		0.00295		0.0174		0.0345		0.0480		0.0542	
		(0.00969)		(0.0130)		(0.0322)		(0.0397)		(0.0530)	
$CONSTANT$	-0.0609	0.0328	-0.0615	-0.104	-0.0786	-0.182	-0.0680	-0.198	0.0000870	-0.0362	0.119
	(0.0320)	(0.0238)	(0.0559)	(0.0681)	(0.0946)	(0.137)	(0.107)	(0.148)	(0.140)	(0.192)	(0.165)
obs.	77	44	220	122	203	113	220	122	191	108	219
R^2	0.405	0.599	0.262	0.344	0.247	0.311	0.242	0.310	0.222	0.304	0.200

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*										
	Δ **TOP 10%**	Δ **TOP 20%**	Δ **TOP 20%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 60-80%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 40-60%**	Δ **MIDDLE 20-40%**	Δ **MIDDLE 20-40%**	Δ **BOTTOM 90%**	Δ **BOTTOM 90%**
Δ $FDIinflow$	0.00919	0.0150**	0.0132*	-0.00467	-0.00424	-0.00402***	-0.00319**	-0.00293*	-0.00236	-0.0156**	-0.0136*
	(0.0877)	(0.00653)	(0.00704)	(0.00349)	(0.00369)	(0.00118)	(0.00129)	(0.00152)	(0.00162)	(0.00727)	(0.00755)
Δ $FDIinflow^2$	-0.00321	0.0000548	0.0000416	-0.0000620	-0.0000589	-0.0000345	-0.0000285	-0.00000157	0.00000256	-0.000106	-0.0000915
	(0.00201)	(0.000127)	(0.000132)	(0.0000480)	(0.0000485)	(0.0000206)	(0.0000221)	(0.0000274)	(0.0000292)	(0.000135)	(0.000141)
Δ $FDIinflow_{-1}$	0.0225	0.00522	0.00342	-0.000300	0.000121	-0.000749	0.0000687	-0.00254**	-0.00198	-0.00800	-0.00601
	(0.0479)	(0.00640)	(0.00701)	(0.00280)	(0.00295)	(0.00246)	(0.00272)	(0.00101)	(0.00118)	(0.00707)	(0.00768)
Δ $FDIinflow^2_{-1}$	0.000558	-0.000202**	-0.000174**	0.0000821***	0.0000756**	0.0000532**	0.0000407*	0.0000487*	0.0000400	0.000277***	0.000246***
	(0.00131)	(0.0000686)	(0.0000634)	(0.0000274)	(0.0000282)	(0.0000211)	(0.0000207)	(0.0000241)	(0.0000235)	(0.0000843)	(0.0000790)
Δ TAX	-0.0834***	0.00595	0.00559	-0.00620	-0.00611	0.000500	0.000662	0.00326	0.00337	-0.00832	-0.00792
	(0.0206)	(0.00932)	(0.00851)	(0.00473)	(0.00460)	(0.00445)	(0.00427)	(0.00394)	(0.00387)	(0.0109)	(0.0100)
Δ TAX_{-1}	0.00304	0.00572	0.00485	0.00180	0.00200	-0.00610	-0.00571	-0.00582	-0.00555	-0.00477	-0.00381
	(0.0104)	(0.0158)	(0.0150)	(0.00350)	(0.00327)	(0.00652)	(0.00631)	(0.00498)	(0.00475)	(0.0161)	(0.0153)
Δ $lnGDP$	3.087*	-1.754	-1.669	0.331	0.311	0.375	0.336	0.306	0.279	1.763	1.668
	(1.708)	(1.729)	(1.730)	(0.579)	(0.574)	(0.621)	(0.605)	(0.306)	(0.313)	(1.736)	(1.739)
Δ $OPENNESS$ %	0.0717**	-0.00876	-0.00639	0.00233	0.00178	0.00315	0.00208	-0.000280	-0.00102	0.0104	0.00780
	(0.0289)	(0.0129)	(0.0127)	(0.00336)	(0.00338)	(0.00464)	(0.00482)	(0.00378)	(0.00386)	(0.0127)	(0.0129)
Δ $TECHNOLOGY$ %	0.0672		0.0414		-0.00967		-0.0188		-0.0130		-0.0458
	(0.0500)		(0.0449)		(0.0133)		(0.0114)		(0.00904)		(0.0421)
$CONSTANT$	-0.00132	-0.332	-0.418	0.0945	0.115	0.162	0.201	0.0268	0.0538	0.342	0.437
	(0.192)	(0.443)	(0.475)	(0.109)	(0.123)	(0.138)	(0.145)	(0.106)	(0.110)	(0.407)	(0.435)
obs.	121	152	152	152	152	152	152	152	152	152	152
R^2	0.310	0.173	0.189	0.211	0.218	0.212	0.241	0.189	0.212	0.191	0.206

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

	(23)	(24)	(25)	(26)	(27)	28)	(29)	(30)	(31)	(32)
Dependent variable	Δ *INCOME SHARE %* *(per percentile of income distribution)*									
	Δ **BOTTOM 80%**	Δ **BOTTOM 80%**	Δ **BOTTOM 60%**	Δ **BOTTOM 60%**	Δ **BOTTOM 40%**	Δ **BOTTOM 40%**	Δ **BOTTOM 20%**	Δ **BOTTOM 20%**	Δ **BOTTOM 10%**	Δ **BOTTOM 10%**
Δ *FDIinflow*	-0.0151**	-0.0133*	-0.0105**	-0.00902*	-0.00646*	-0.00584	-0.00353	-0.00348	-0.000857	-0.000838
	(0.00649)	(0.00696)	(0.00422)	(0.00446)	(0.00355)	(0.00361)	(0.00240)	(0.00232)	(0.00143)	(0.00142)
Δ $FDIinflow^2$	-0.0000578	-0.0000442	0.00000420	0.0000147	0.0000387	0.0000432	0.0000403	0.0000406	0.0000234	0.0000236
	(0.000124)	(0.000129)	(0.0000764)	(0.0000813)	(0.0000596)	(0.0000621)	(0.0000337)	(0.0000343)	(0.0000138)	(0.0000144)
Δ $FDIinflow_{-1}$	-0.00724	-0.00539	-0.00694*	-0.00551	-0.00619***	-0.00557**	-0.00365***	-0.00360**	-0.00233***	-0.00232**
	(0.00621)	(0.00679)	(0.00393)	(0.00442)	(0.00201)	(0.00219)	(0.00122)	(0.00121)	(0.000762)	(0.000802)
Δ $FDIinflow^2_{-1}$	0.000228**	0.000199**	0.000146**	0.000124*	0.0000926*	0.0000831*	0.0000439	0.0000431*	0.00000489	0.00000460
	(0.0000775)	(0.0000727)	(0.0000629)	(0.0000599)	(0.0000486)	(0.0000457)	(0.0000268)	(0.0000240)	(0.0000142)	(0.0000136)
Δ *TAX*	-0.00499	-0.00462	0.00120	0.00149	0.000704	0.000827	-0.00255	-0.00254	-0.00236	-0.00236
	(0.0107)	(0.00987)	(0.00962)	(0.00925)	(0.00603)	(0.00589)	(0.00263)	(0.00261)	(0.00138)	(0.00139)
Δ TAX_{-1}	-0.0109	-0.0100	-0.0127	-0.0120	-0.00660	-0.00630	-0.000773	-0.000749	0.000601	0.000610
	(0.0148)	(0.0141)	(0.0119)	(0.0115)	(0.00584)	(0.00567)	(0.00216)	(0.00216)	(0.00214)	(0.00215)
Δ *lnGDP*	1.581	1.494	1.250	1.182	0.875	0.846	0.569	0.567	0.269	0.268
	(1.549)	(1.546)	(1.052)	(1.057)	(0.585)	(0.607)	(0.414)	(0.421)	(0.291)	(0.293)
Δ *OPENNESS %*	0.00704	0.00460	0.00471	0.00282	0.00156	0.000746	0.00184	0.00177	0.00192	0.00190
	(0.0138)	(0.0140)	(0.0121)	(0.0124)	(0.00795)	(0.00803)	(0.00493)	(0.00484)	(0.00359)	(0.00360)
Δ *TECHNOLOGY %*		-0.0426		-0.0329		-0.0142		-0.00116		-0.000422
		(0.0422)		(0.0301)		(0.0196)		(0.0112)		(0.00525)
CONSTANT	0.246	0.334	0.151	0.220	-0.0112	0.0182	-0.0380	-0.0356	-0.0249	-0.0240
	(0.432)	(0.462)	(0.337)	(0.353)	(0.210)	(0.218)	(0.116)	(0.119)	(0.0675)	(0.0681)
obs.	152	152	152	152	152	152	152	152	152	152
R^2	0.178	0.195	0.182	0.202	0.173	0.182	0.162	0.162	0.124	0.125

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 15: The effect of FDI on the Gini coefficient.

	(1)	(2)	(3)	(4)
Dependent variable	**Δ GINI**	**Δ GINI**	**Δ GINI**	**Δ GINI**
Δ FDI	0.0154	0.0213	0.0112	0.0173
	(0.0250)	(0.0258)	(0.0270)	(0.0288)
Δ FDI^2	-0.0000224	-0.0000441	-0.00000807	-0.0000311
	(0.0000887)	(0.0000919)	(0.0000953)	(0.000102)
Δ FDI_{-1}	0.0216	0.0248	0.0261*	0.0309*
	(0.0145)	(0.0147)	(0.0139)	(0.0144)
Δ FDI^2_{-1}	-0.0000684	-0.0000770	-0.0000846*	-0.0000980*
	(0.0000467)	(0.0000474)	(0.0000463)	(0.0000477)
Δ TAX			0.00440	0.00395
			(0.0115)	(0.0105)
Δ TAX_{-1}			0.00631	0.00731
			(0.0190)	(0.0182)
Δ $lnGDP$	-1.486*	-1.420*	-2.928	-2.894
	(0.710)	(0.734)	(1.703)	(1.739)
Δ $OPENNESS$ %	-0.00348	-0.00413	-0.00202	-0.00360
	(0.0114)	(0.0117)	(0.0115)	(0.0122)
Δ $TECHNOLOGY$ %		0.0468		0.0506
		(0.0426)		(0.0467)
$CONSTANT$	0.602***	3.621	-0.467	-0.603
	(0.136)	-2.882	(0.448)	(0.479)
obs.	202	191	152	152
R^2	0.466	0.377	0.192	0.211

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01