Income Inequality of Households with Children: An Empirical Analysis of the Shifts in Hungarian Family Policy

By

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Submitted to

Central European University

Department of Economics

In partial fulfillment for the requirements for the degree of Master of Arts in Economic Policy in Global Markets

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Budapest, Hungary 2015

Abstract

In this thesis I investigate the relationship between Hungarian Family Policy and income inequality in households with children. More specifically, I exploit the shifts in policy due to changes of ruling parties to test whether their preferred policies are associated with the variations of income gap for households with children. Further, I devote particular attention to the recent reform in Family Policy, the introduction of family tax allowances. I focus solely on the poverty and inequality dimension of this policy and include only cash benefit elements as part of the analysis.

A pooled OLS regression is applied to the first data source, TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések), in order to provide an overview of the association between party rule and income gap with respect to position in the income distribution for the 2000-2014 period. A Difference-in-Differences method is followed with the second data source, the EU-SILC longitudinal micro data, to test the changes in household income due to the introduction of the tax allowance in 2011 focusing especially on the households at the bottom of the distribution.

The first conclusion from this study is that families with children at the lowest income quintile face on average a 2 percent higher income gap from the population's median in years when conservative parties are in power, whereas the coefficient on the gap for the fourth quintile loses significance once I control for social transfers. The second finding is that the introduction of the family tax allowances have no significant impact for the families at the bottom of the distribution while the rest gain on average between the ranges of HUF 8000-15000 per month adding in this way to the disparity between the two groups. These findings complement the extensive qualitative literature on inequality patterns and their relation to family policy, and confirm the previous microsimulation conclusions on the evaluation of tax allowances.

Acknowledgments

I would like to express my gratitude towards Professor László Mátyás, the supervisor of this thesis. I thank him profoundly for his indispensable guidance and support throughout this period. His feedback has been vital to my progress in this endeavour. A second acknowledgment is dedicated to András Gábos, my supervisor at TÁRKI, without whom this thesis would not have been possible. He helped in exploring ideas for this thesis and assisted me in accessing the data central to this analysis. Lastly, I want to thank the Department of Economics at CEU for their readiness to support me in reaching my goals and pursuing new projects.

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1. Introduction

The aftertaste of the recent economic crisis in Europe can still be felt in the social policy of the EU governments. Policy makers are faced with a two-edged sword of keeping expenditure low as well as combating increasing levels of poverty and inequality in the society in order to maintain social cohesion in the vulnerable post crisis period. In particular, child poverty has witnessed increasing trends not only in Europe but in all developed countries; the latest UNICEF report estimated that a number of approximately 76.5 million children are affected by poverty in the affluent countries alone (UNICEF 2014). Hungary is among these countries despite leading the list of middle income countries on government spending for families and children (ILO 2014). While indeed one way of combating poverty and inequality is through social policies of redistribution, their implementation seems to have had adverse effects for the country in question. The latest social report on Hungary by TÁRKI displays downward trajectories for well-being in Hungary with child poverty and inequality standing out as a particularly alarming issue (Kolosi and Tóth 2014). Thus, an area that deserves particular attention regarding these upsetting findings is the approaches followed on family policy.

The content of family policy can be subdivided into objectives and instruments. Objectives fall along different themes such as fertility, labour supply, household poverty and inequality issues. Its instruments vary from cash transfers, in-kind benefits, and other types of services. Governments may decide to apply these tools universally or target them to certain categories of the population. More often than not, the dimension and tools favoured depend on the political and ideological views of the policy makers in power rather than an economic standpoint (Wennemo 1992). Thus, family policy may have multifaceted impacts and in-depth analysis is required to understand its

relation to the levels of poverty and inequality within the society. Surveying the existing literature on Hungarian family policy two particular points stand out. One is that family policy under left-wing governments has focused relatively more on the poverty dimension and has been more flexible in their approach depending on the prevailing economic circumstances, while right-wing ones have favoured demographic objectives comparatively independent of the financial constraints(Scharle and Szikra 2015; Inglot, Szikra, and Rat 2013; 2011; Gyarmati 2010). The second message emerging out of recent publications is that the current shift of Hungarian family policy, that of introducing family tax allowances, is heavily targeted at upper and middle-income families with children whereas no substantial support is extended to the poorest ones(Szikra 2014; Tóth and Virovácz 2013).

In this thesis I set out to investigate these findings and provide, thus, an empirical analysis on the relationship between Hungarian Family Policy and income inequality in households with children. More specifically, I exploit the shifts in policy due to changes of ruling parties to test whether their preferred policies are associated with the variance in income gaps for households with children for the 2000-2014 period. I devote particular attention to the most recent break in Family Policy, the introduction of family tax allowances in 2011. Even though there are several dimensions to family policy, I focus solely on the poverty and inequality dimension of it including only cash benefit elements as part of the analysis. Issues of equal importance such as fertility and labour supply are beyond the scope of this thesis. Through this analysis I aim to supplement the extensive qualitative literature on the comparisons of family policy approaches and complement the microsimulation studies on the impact of family tax allowances.

To address the first question of this thesis the method used is a pooled OLS regression. It is tested on cross-sectional data from TÁRKI Household Monitor Survey (TÁRKI Háztartás

Monitor Jelentések) covering a broad time span (2000-2014) to capture the relationship between household income gap and the ruling party controlling for other elements. The analysis is restricted to households with children as they are essentially the target of family policy. While measuring the household income gap is not equivalent to accounting for reductions of child poverty, estimating the economic position of households with children may prove indicative of whether the findings in the qualitative research on the topic have indeed been more redistributive years of left rule as opposed to right one. The broad overview provided by the first model is complemented with a thorough analysis on the impact of family tax allowances in 2011 on total household income of families with children. Using EU-SILC micro panel data, I employ a Difference-in-Differences regression method to capture whether there has been an impact on the real income of households after accounting for their different characteristics. Various specifications are introduced in order to estimate the policy's impact on different strata groups.

The first central finding from this study is that families with children at the lowest income quintile face on average a 2 percent higher gap from the median in years when conservative parties are in power. The gap remains significant even after controlling for demographic characteristics and levels of social transfer. In contrast, the income gap for the fourth quintile in years of conservative rule loses significance once the social transfer controls enter the regression. While there are limitations to this model, there is enough indicative evidence to suggest that the poorest households with children are less targeted during right-wing governments than left-wing ones and that the better off are further away from the population's median income due to the higher levels of social transfers. This confirms prior qualitative findings in the field (Scharle and Szikra 2015; Inglot, Szikra, and Rat 2013; 2011; Gyarmati 2010). The second finding is that the introduction of the family tax allowances have no significant impact for the families at the bottom of the

distribution while the monetary gains for the rest range between HUF 10000-15000 per month on average. For families of same employment status, there is no significant difference in income level for the poorest households after the reform. However, there is a significant decline in the household income if the head is unemployed in the post reform period as compared to the previous years. Similar to studies on tax redistribution by Benedek and Lelkes (2008) and Tóth and Virovácz (2013), I also find that the poorest are either excluded from the windfall gains of the new policy or they are worse off in cases where the head of household is unemployed. Together with the prior findings, this analysis presents itself as a valuable contribution to the field of Family Policy in Hungary and could facilitate future policy debates on such matters.

The thesis is structured as follows. In the second chapter I give a brief account of the literature on the tools of family policy and implications for child poverty and inequality. The third chapter is devoted to a detailed description of the Hungarian Family Policy throughout the period 2000-2014 with a special focus on the policies followed by the current conservative government. I follow in the subsequent chapter by providing a model to analyse the first part of this thesis question, whether different governments are differently associated with inequality. The fourth chapter focuses on the most recent policies of the current conservative through a difference-in-differences model. The fifth chapter discusses the empirical results in light of the findings by other research done on the topic and the last chapter concludes.

2. Literature Review on Family Policy

The trends in Europe have been of an overall decline in child benefit packages, but an increase in targeting evident by the fact that the low paid part of the society have been relatively spared from benefit reductions (Mechelen and Bradshaw 2012). Moreover, in line with the increased efforts of activation, the tax credits and tax allowances are being further merged to the existing tools of family policy.Immervoll and Pearson (2009) have labelled it as "the 'fiscalisation' of child benefits". The debate on whether targeting or universalism achieves better redistribution to the benefit of the worst off in the society is of crucial matter as it influences the policy orientation at national and supra national level, which in turn impacts country's choices of policies. Due to importance of these elements a brief overview of the ongoing debate in the literature is provided below.

2.1 The Debate on Universalism and Targeting

In general, the monetary child benefit packages in family policy fall along three main spectrums: universal, means-tested, and a combination of both. The efficiency of each policy depends on the outcome to be achieved. For a long time the belief that targeting to the poorest ironically does not lead to more poverty reduction than having universal cash transfers that cover a broad range of groups in the society held a very solid ground in Social Policy debates. This was coined as the paradox of redistribution: "The more we target benefits at the poor only and the more concerned we are with creating equality via equal public transfers pensions to all, the less likely we are to reduce poverty and inequality" (Korpi and Palme 1998, pp.681). In other words, when looking at the country level, studies had shown a negative correlation between the targeting of social transfers and the decrease in inequality when analysing the core EU countries in the period

prior to the EU enlargement. The main reasons for this discrepancy have to do with the difficulty of adequately performing means testing (i.e. extra administrative costs, etc.) in addition to being able to have a bigger budget once the pool of those acquiring the benefits is expanded due to increased political support .However, more recently when expanding this analysis to include the Southern and Central Eastern European states, the relationship becomes rather weak and loses significance allowing for the debate on these tools to resume again. The paper by Marx, Salanauskaite, and Verbist (2013) finds that empirical specification, data source and country selection matter significantly for the outcome; with regard to family benefits they still find a weak negative impact of universalism on poverty reduction, but the country differences are substantially huge to make any reasonable conclusion. The other view is that it is best to spend the money where it is most needed and it has become more prevailing ever since (Besley 1990). Means tested benefits targeted at the poor perform better than others, but they entail high administrative costs if over or under coverage is to be avoided.

In general, there are mixed results whether universalism or targeting works better, it is heavily dependent on context, distribution of population, institutions, as noted by Marx, Salanauskaite, and Verbist (2013). Looking more closely at case studies on family policy and child poverty, a large number of them, mostly following microsimulation exercises, show that size of benefits is important and, thus, the larger the size of benefits the higher the poverty reduction (Notten and Gassmann 2008). Further support for this claim was found when comparing targeting levels in EU countries (Van Lancker and Van Mechelen 2015). They find that size of budget matters: the more the government spends the higher the poverty reduction even after controlling for the reverse relationship that the higher the initial poverty level, the more likely it is that the

government will spend more. In addition, they also confirm that the better the targeting of this sizable budgets the higher the poverty reduction.

What follows from these mixed results is that the ideal system for poverty reduction in families with children is designing a strategy of family policy that combines a system of precise targeting within universalism. In this way, the government will manage to secure a large budget while also redistributing to those most in need. In other words, Van Lancker and Van Mechelen (2015) settle the debate by arguing that both tools should be employed, and targeting is not bad in itself, but rather the way that targeting is done should be improved.

2.2 Family Tax Allowances

In addition to cash transfers, an essential instrument of family policy are tax allowances, usually complement child benefits, but often even replace them. Although earnings related tax allowances have by definition a bias towards the working population, they can be designed in such a way that would minimize the potential losses for the non-working population (O'Donoghue and Sutherland 1999). In an ideal setting this tool would allow families to either buy "big-ticket" items, maintain financial stability through repaying debt and asset building through the increased amount of income, while in not as optimal cases, it is provides relief for consumption purposes (Mendenhall et al. 2012). If and when it results in asset building and savings, family tax allowances would be facilitators of redistribution and economic mobility in the long run.

For example, the system devised under Labour helped to keep inequality at low levels despite the introduction of family the tax allowances which failed to reach the lower end of the income distribution. Bargain (2012) finds that the children's tax credit which was particularly aimed at middle-income families did indeed drive up the median income in the market, while the

worse-off families experienced no improvements to their financial situation with respect to this policy. However, the introduction of income support, a type of mean tested benefit, helped the worst off due to its good targeting. Thus, the society as a whole experienced a relatively more equal distribution than in absence of these reforms.

However, the more common outcome when introducing this instrument is that of increased inequality and poverty. For example in Europe higher poverty and inequality levels have been attributed to the design of tax benefit systems which advanced the economic gains of pensioners more so than those of the children (Hills et al. 2014; Chzhen et al. 2014). Other simulation studies have also shown the bias of this element towards the better-off by not being able to account for a gin if the household lies in towards the lower end of the income distribution. Testing different type of designs from dual earners to one earner designed system, Steiner and Wrohlich (2008) find that "under all three reforms, the lion's share of the income gains would accrue to families with children in the upper part of the income distribution". Nonetheless when the gains from tax allowances do reach the families, they have been shown to improve the well-being of children and help in reduction of poverty and deprivation. The higher income gained has often translated into better achievement in education measures and psychological wellbeing, i.e. improved test scores, decreased aggression, etc. (Dahl and Lochner 2012; Milligan and Stabile 2008).

3. Hungarian Family Policy in Perspective

This chapter is devoted to a detailed overview of the Hungarian Family Policy which is the pivotal part of this thesis. I start by describing the cash transfer elements in this field that have been predominant in the time frame analysed 2000-2014. The following subchapter gives a brief chronological account of the way different parties in power shaped family policy according to their political interests and ideologies focusing on the more recent changes of the conservative government in power. I then outline the studies that measure the impact of these policies.

3.1 The Main Monetary Instruments

In this section I provide a brief description of the main cash transfer schemes that Hungarian Family policy has provided throughout the time frame 2000-2014. The list below is not exhaustive, but these are the core elements of interest in this analysis. I separate them into universal schemes and income related ones. The first ones are schemes that are applicable to all families with children with no conditions attached, and the latter one are earnings-related ones.

Universal schemes:

a. Family Allowance (Családi pótlék) is a tax financed universal scheme covering all residents. Currently, it is paid from birth of child until he/she finishes education and ranges from 12000 HUF for families with one child to 16,000 HUF per child in families with three or more children. Some modest increase in the sum is applicable if the household is a single parent or the child has special needs.

b. Child Home Care Allowance (Gyermekgondozási segely), which is offered in case the parent/guardian is raising the children at home until the child turns 3 years old. Currently its amount is equal to the level of the minimum old age pension 28,500 HUF independent of the

number of children within the family. If the child is less than one year old, the parent is not allowed to undertake a job, while later on he/she can work up to 30 hours a week.

c. Child Raising Support (Gyermeknevelési támogatás) is a benefit directed at parents who raise three or more children in their own home and if the youngest child is between 3 and 8 years old and the eldest child is under 18 years of age. The present policy dictates an amounts equal to the minimum old age pension, 28,500 HUF and parent/guardian cannot do paid work more than 30 hours a week. Claiming and receiving child home care allowance, child raising support or child care fee together is forbidden.

Earning-Related schemes:

a. Child Care Fee(Gyermekgondozási díj – GYED) or child benefit is an amount equal to 70 percent of the previous earnings of the parent taking care of the child. It is capped at 70 percent of twice the minimum daily wage, which was 142,100 HUF in 2014. The duration of the benefit can be at a minimum 365 days, and up until the child turns two year old.

b. Family tax allowance (Családi adókedvezmény) is a benefit for tax-payers. They may benefit from the family tax allowance without any limits related to the volume of their annual income and single parents raising children alone cannot share the allowance with the other parent. Currently these tax allowances range from 10,000 HUF/month per child for a typical taxpaying family with one or two children up to 33,000 HUF/month/ per child for families with three or more children. The full tax allowance amount can only be claimed if the taxable base is large enough to cover it. A detailed description of the system will be provided in Chapter 4 when I analyse in detail the current system of family tax allowances.

3.2 Chronology of Shifts in Family Policy in Hungary (2000-2014)

The aforementioned aims of family policy, those of poverty reduction and fertility growth, are naturally applicable to Hungarian family policy as well. While there have been efforts to place Hungary within categories of family policy (Szelewa and Polakowski 2008), the frequent abrupt shifts in this domain with regard to monetary transfers make it a challenging task which will also be evident from the following chronological description provided here. What can be said for certain about family policy in Hungary is that is has been a pivotal part of electoral gain for both parties. It has been the fertility issue that has been the central focus of debate rather than focus on inequality or employment (Inglot, Szikra, and Raț 2011).

The battlefield on this area between left and right wing leaders in Hungary has long followed stable trends with conservatives under Fidesz favouring the middle class by pushing for family tax credits and the restoration of the childcare benefits -- GYES and GYED, and the socialists opting for universal family allowances with no attached conditions. The cabinet led by Orban in the period of 1998-2002 followed a policy of mostly tax credits and restoration of GYES and GYED which had suffered a blow by the former regime that tried to cut spending in social policies (ibid.). The focus of this cabinet was to not confine the benefits for the needy, but redirect them towards those working families that would face reduction in income did they decide to have children. This was demonstrated by the introduction of the tax allowance and the restoration of GYED as well as the removal of income ceilings, showing thus signs of favouring middle and upper classes at the expense of the worse off (Gyarmati 2010) .

The goal of reducing child poverty only became stated explicitly in the 2002-2004 as part of the Medygessy government where one of the key priorities of the government was to take care of the "negative redistribution" (Gyarmati 2010). Even though, the liberal-socialist coalition

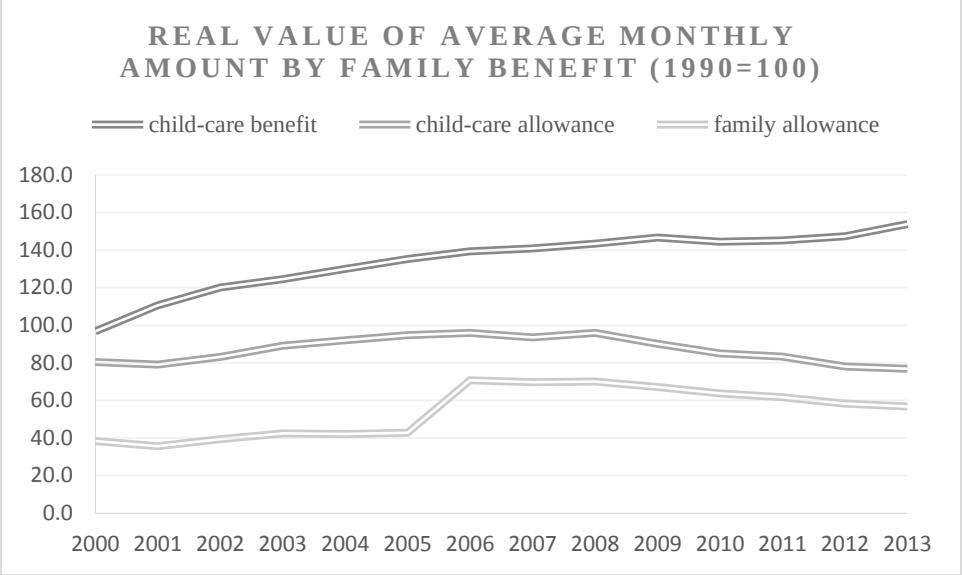
promised to expand opportunities for the whole population including extension of essential benefits of family policy to a broader target group, they could not take away the family benefits favouring the middle classes. Getting rid of the legacy of the previous conservative government was too costly as a political action. This lead to massive expansion of the budget due to trying to satisfy both sides in terms of family policy benefits (Scharle 2015). During their rule, family allowances, the universal benefit, increased by 20% and there was an introduction of a 13th monthly family payment. All this was undertaken as an effort to increase fertility (Inglot, Szikra, and Rațe 2011). Though this government criticised the "perverse redistribution" of the previous governments, there was no major action taken and the changes they imposed were not substantial enough to readdress the previous distributional movements (Gyarmati 2010). The "100 steps programme" introduced by the following socialist government which targeted to some extent more the poorer families, but substantial amount of financial support was still extend to the wealthiest part of the society (Gyarmati 2010).

The most distinct policy against child poverty was that of the second Gyurcsány administration 2006-2008, whereby its aim was to eliminate child poverty giving it a more child policy dimension. The movement of family policy under the social policy domain also indicates the socialist party concern with poverty and redistribution more so than the conservatives. This meant that the primary goal became aiding the poorest first. Other key changes in family benefits included the adjustment of family allowance in line with inflation and in general universal schemes gained a bigger percentage of the package (Gyarmati 2010). In addition, the socialists abolished the previously established tax credits and doubled the family allowances under the government of Ferenc Gyurcsány (Inglot et al 2013). The intended support towards the poorest and the focus on child poverty in particular, seemed to wane off with the onset of the economic crisis, and the

coming of elections, where getting middle class votes was a key aim (Inglot, Szikra, and Raț 2011). This was shown by the restriction of family policies through stopping indexation of both universal and means-tested social transfers, allowing them thus to lose real value (GYES and family allowances lost 15% of real value by 2010).

Central shifts in the current family policy include the non-indexation of child allowances and the lack of upper limit in family tax allowances. Additionally, the former tax-allowance (adójóváírás) for low-income groups was reduced and will be stopped from January 2012 (Inglot, Szikra, and Rat 2013). These changes fall in line with the typical description of the family policy battlefield between socialists and conservatives (Scharle and Szikra 2015). The introduction of the tax allowances, which will be the focus of Chapter 5, also is compatible with the above presented conservative ideology. The working families that have enough household income base to claim allowances can get up to 10000 HUF/child for up to two children and it goes up to 33000 HUF/child for families with more than 3 children and large enough deductible base. Current family policy in Hungary is moving from targeting the poor households to targeting the "working" families also labelled as the middle class (Szikra 2014). The implications of these changes seem to point to a deterioration of the situation for worse-off families and an increase in inequality and tension among social strata groups (Kopasz et al. 2013). Looking at the expenditure data from the Hungarian Treasury budget revel a substantial decrease in the universal benefits, while there seems an upward movement in income related benefits (excluding tax credits) after the right wing party came into power.

Figure 1- Real Value of Average Monthly Amount of Family Benefits



Source: Hungarian State Treasury (Magyar Államkincstár)

3.3 Impact on Child Poverty and Income Inequality

There is substantial agreement in the more recent literature on family policy, which was reviewed in the previous chapter, that a certain degree of targeting within universalist schemes is one of the preferred ways of tackling child poverty and negative redistribution. In this subchapter I intend to review how these findings stand with regard to the practices followed in Hungary. One of the earlier papers by Förster and Tóth (2001) analyses the impact of family cash transfer on poverty reduction and whether targeting adequacy had improved or worsened after the reforms on social policy in the second half of the 1990s. By comparing poverty indices at that time with hypothetical ones in absence of family transfers, ignoring any behavioural effects, they find that family cash benefits reduced poverty by two-thirds in Hungary after the reforms. The main reduction in poverty resulted from lowering the intensity and inequality within the poor children rather than the incidence. This was a period of more adequate targeting in Hungary. In another related analysis regarding redistribution in , Benedek, Firle, and Scharle (2006) for more recent

periods find that the adequacy of targeting the poorest has significantly deteriorated. Adding family tax allowance to the other benefits, 40-50 percent of total benefits are acquired by families at the upper five deciles. The poorest are thus left out due to lack of tax liability to acquire earnings related benefits in addition to mediocre targeting. (Benedek, Firle, and Scharle 2006).

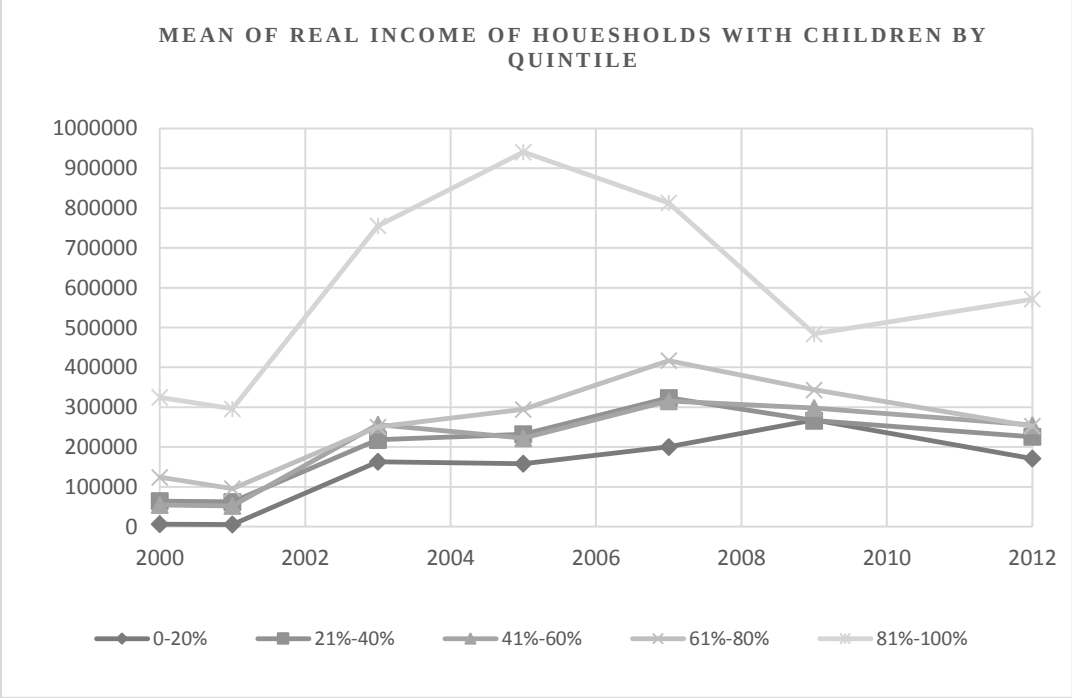
This was consistent with the findings of follow up microsimulation exercise through TARSZIM (Benedek et al 2007). They find that in 2002-2004 the richer half of the population was receiving the bigger slice of the pie of benefits including family tax allowances in comparison to a hypothetical, evenly declining distribution of transfers whereas the universal child benefit helped to close this disparity in the share of benefit receipt. Further, their findings imply that the targeting of tax allowance was inadequate resulting in the top income families profiting the most from this policy while the bottom was covered only at a very limited level. In contrast, the universal child benefit were well targeted at the poorest[1]. Another very recent microsimulation study on taxes and redistribution confirmed that the tax reforms during the period of 2010-2013 favour in general big families with large incomes(Tóth and Virovácz 2013). A startling finding they show is that the reduction in tax due to tax allowances amounted to a total of HUF 218 billion loss for the budget and, more importantly, 83 percent of these was redistributed towards the top quintile. This not only shows that the days of progressive taxation are long gone from the Hungarian system, but it also proves the increase in the inequality given that the poor gained substantially less if anything at all making them relatively worse off. (Martorano 2014)

What emerges from this overview is that in terms of family policy Hungary makes jumps between types, universalist and targeting regimes, and aims fertility (typically of middle and upper

[1] A detailed chart of gains for each decile obtained from Benedek et al (2007) is provided in Appendix (See Figure 6).

classes) or poverty reduction depending on the party in power. The right wing governments typically favour demographic aims and are known to target benefits towards the better off, while the socialist are more prone to press their policies according to economic circumstance. Overall, the time trends show that the benefits seemed to have reached the poorest in the beginning of 2000s and then targeting had deteriorated with monetary gains flowing towards the upper part of the income distribution paradoxically. Thus, family policy has not always been at the service of those who need it the most. Moreover, the recent changes are a clear detachment from redistribution towards the lower end.

Figure 2 - Household Real Income Mean By Quintile (2000-2012)



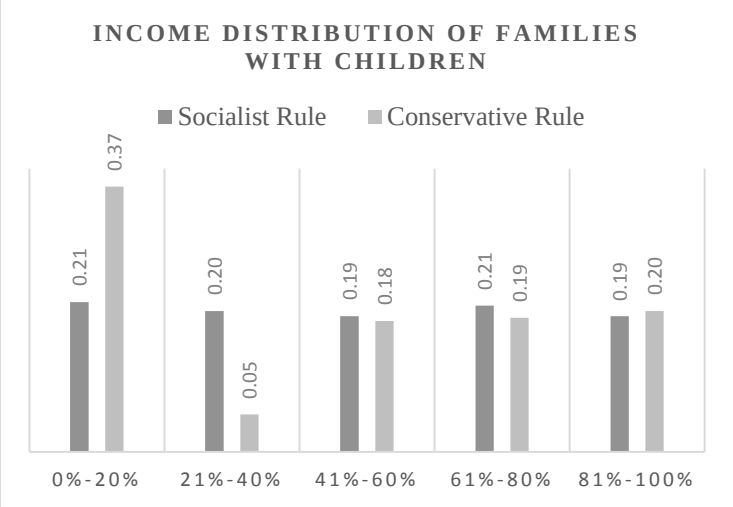
Source: Author's calculations based on TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések)

Figure 2 in the previous page reveals the distinct trend in earnings levels for the top quintile and, more importantly, it is the only group that experienced a hike in earnings from 2009 to 2012. In contrast, the remaining quintiles' trend remained either flat or declined. In the period prior to crisis there was an upwards trend for the five categories, which is a typical feature in Europe too. Part of it could be due to the generous extension of universalist measures, benefiting all families during the socialist regime as mentioned in the chronology above, but part of it is the same as the increasing income level trend that the pre-crisis boom brought about. Thus, in order to assess these claims, I will first look at income gap throughout 2000-2014 and then check how families fare after the recent reform of introduction of family tax allowances

4. Socialists vs. Conservatives and the Income Gap: A pooled OLS model

In this chapter I asses the claims in the literature that left-wing parties have paid relatively closer attention to poverty eradication in their approach to family policy as opposed to right-wing ones. I start my analysis by investigating the variation in income gaps covering a time span of 2000 to 2014. Through this chapter I want to establish whether the income gap the household faces is wider for those in the lowest and highest distributions depending on the party in power. A brief look at the summary statistics for the variables intended to use in the model indeed confirms some of these claims (see Figure 3).

Figure 3 - Income Distribution of Families with Children



Note: Years included (2000-2014)
Source: Author's calculations based on TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések)

As the figure on the left shows, a bigger percentage of the population is in the lower part of the income distribution in years when conservative party is in power than in socialist. The difference between the first two quintiles are striking, showing that in years of right wing governments about 16 percent more of the population is earning in between the 20% range of total real household income of families with children. Moreover, looking at the income gap in Table 1 below, the poorest household receives less of the median income in conservative years moving approximately 2% away from the centre[2]. However, one should not be too hasty to make conclusions from these summary statistics. Despite

[2] A similar comparison but with mean of real household income can be found in the Table 6 in Appendix A.

the significant results, there could be other driving forces or lagged effects filtered in the changes, which are not related to the policies followed by any ruling party. For example, the great recession hit particularly bad the worst off families and that was, thus, the economic situation inherited by the conservative party. The difference in gaps could conceal such effects rather than tell something about the adequacy of policies. Conducting an empirical analysis through the Pooled OLS method may better inform us on the existence of such inequality patterns.

Table 1 - Mean of Real Income Gap By Quintile and Party Rule

	Mean of Real Income Gap		
	By quintiles and party in power		Difference
	Socialist	Conservative	
First Quintile	0.496	0.475	0.021***
	0.005	*0.006*	*0.008*
Second Quintile	0.780	0.773	0.008*
	0.003	*0.003*	*0.004*
Third Quintile	1.002	0.998	0.004
	0.003	*0.003*	*0.005*
Fourth Quintile	1.293	1.310	-0.017**
	0.005	*0.006*	*0.008*
Fifth Quintile	2.173	2.110	0.063
	0.049	*0.044*	*0.067*

Note: Years included (2000-2014); Source: Author's calculations based on TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések)

4.1 Description of Data

The data used in this model comes from the TÁRKI Household monitor survey (TÁRKI Háztartás Monitor Jelentések) which runs every two years except for the consecutive surveys conducted in 2000 and 2001[3]. This survey is the extension of the Hungarian Household Panel Study (Magyar Háztartás Panel) without the longitudinal format. The structure of the dataset is, thus, a repeated cross section. It is composed of an individual and a household questionnaire linked by household and personal identification numbers. It contains around 500 observations of households with children each year[4] and provides extensive information on income, structure of household, personal characteristics (education, age) and detailed breakdown on social transfers (family, disability, unemployment) which are key to this analysis. One limitation of this survey is that there are no recorded data on the amount of taxes or tax allowances.

Outcome variable of the model

The key outcome variable which I use as a proxy for the household inequality in this model is the total household net income of the family over the median for a given year of families with children. The median is considered as opposed to the mean, because it is less prone to potential outliers in the survey. I restricted the sample to households with children for ease of comparison and interpretation due to the specifics of composition and needs as well as the focus of this analysis targets only these type of households.

Main independent variables

I constructed categorical variables for the observation's position in the income distribution in the given year taking value 1 if it lies in the first quintile, the lowest end of the distribution, and so

[3] The years included in the following analysis are 2000, 2001, 2003, 2005, 2007, 2009, 2012, and 2014.
[4] For the exact numbers of observation of each year, please see the table 2 provided in the Annex.

on. In addition, I created a dummy taking the value one if the observation is taken from a year when a conservative/right-wing party was ruling as well as interaction terms between the distribution location and ruling party. For simplicity, I assume the rulings of Socialist-Liberal Coalition as socialist given that they largely followed similar policies based on the literature review.

Controls: Demographic and Social Transfers

It is essential to filter out elements which may be correlated with both location in income distribution and the income gap. Thus, I control for employment status and education level of the household head as well as the size of the household. In addition, given that the dataset allows us to peer into detailed benefits and social transfers, I also add them to the regression to test whether they can explain the variation in income gap if any.

4.2 Outlining the Method

Given the available data of a repeated cross section, the model employs a multivariate Pooled Ordinary Least Squares regression with year fixed effects. The main aim of this model is to provide an overview for the given period of 2000-2014 and see whether there is an association rather than infer causality or evaluate particular policies.

The model follows the equation given below:

$$Y_i = \alpha + \theta_{nt} \times quintile_n + \lambda \times regime + \gamma_{nt} \times quintile_n \times regime_t + \delta_j \times M_j + \beta_k \times X_k + yearFE + \varepsilon_i \quad (1)$$

Y_i – is the outcome variable of interest, the household income gap. It will be measured as the percentage of average household monthly total income.

$quintile_n$: They are categorical variables indicating at which 20th percent of distribution household lies in the overall household sample income distribution at the given year. The base, the excluded dummy, is the middle percentile (40-60) to make the interpretation easier. Using quintiles or deciles as a measurement of distribution location is usually followed in microsimulation studies of social policy (Benedek, Firle, and Scharle 2006; Steiner and Wrohlich 2008; Tóth and Virovácz 2013). I try to correct for the limits of using quintiles instead of demographic groups (Benedek and Lelkes 2008), by using quintiles of only households with children and quintiles. Moreover, since I am primarily interested in the poverty and inequality within this group, it is their relative position which matters.

$regime_t$: In the output table coded is as conservative. It is a dummy variable taking value 1 if party in power is conservative, and 0 if socialist. I include year fixed effects to partial out time trends changes such as changes in the underlying market income distribution or the post-crisis collapse in income levels. . Other controls included in equations with controls (2&4): M_j is a vector related to all child benefits incomes, such as family allowance, maternity benefits. X_k- is a vector to control for demographic characteristics, such as size, whether the household head is working and other transfers. Year fixed effects are included since it is not a panel data and to account for secular changes, such as inflation, changes in productivity or even shocks like the economic crisis.

The interaction terms are the key variables of interest as they are intended to measure whether the claims in literature hold that socialist governments have had a more redistributive and equalizing impact and conservatives have increased inequality by targeting middle classes. For these statements to hold, the coefficients of the interaction terms (γ_{nt}) would be significant and positive for the higher quintiles and negative for the lower quintiles in periods of conservative rule.

One of the limitations of the outlined method is that it cannot filter out particularly which policy affects this given that there are simultaneous shifts in other strands of social policy. However, since the sample is restricted to households with children and assuming that other elements of policy beside family related ones and relevant characterises are accounted in the control variables, it can be inferred that if the coefficient terms are significant then this difference is supposed to be at least partly due to different approaches in family policy. A further limit of the model is that the chosen explanatory parts are highly correlated with the outcome variable due to its structure in addition to the common endogeneity issues typical of cross section data. Using heterosekdasticity robust standard errors is aimed at partially addressing these issues. Including year fixed effects takes away time-invariant effects of given year. Thus, for example the changes in median household income over the year are taken into account in the year dummies.

4.3 Presentation of Results

The output results of the regression are presented in Table 2 in the next pages. The quintile distribution dummies are significant and with the expected sign. This should be the case since income gap is directly related to the position in the income distribution. The highlighted interaction terms are intended to capture the higher gap households may face in conservative years due to the "negative distribution" policies prevailing in those years. Initially in the regression (1) the households in the lowest 20% of the income distribution and those in the range of 60-80% seem to have significant coefficients with the expected signs. In other words, being in the lowest 20% in conservative years is associated with a 2% further away from the median on average. This coefficient, although borderline significant, remains so even after controlling for characteristics of the household and for social transfers afterwards in regression (3). There seems to be substantial

evidence that for the poorest families with similar demography (i.e. education levels, number of members, etc.) and equal levels of social transfers, the gap is higher in periods of conservative rule than socialist one. There remains an unexplained variation which is attributed to the party in power. On the other hand, it should be admitted that besides being borderline significant the coefficient is not strikingly large in magnitude and thus, not economically significant. It is interesting that the richer part, the 60-80%, also faces a larger gap from the median in conservative years. However, once I control for level of social transfers and occupation, the interaction term becomes insignificant. From this remark, it may be implied that part of the larger gap observed in conservative years for the "middle class" is due to the higher amount of social transfers. Hence, it confirms the statements in the literature of the dominance of middle class in the right-wing approach towards family policy.

Table 2 - Model 1 - Summary of Results

	Income Gap		
	(1)	(2)	(3)
1st Quintile x Conservative	**-0.0172***	**-0.0158***	**-0.0185***
	-0.0093	*-0.00942*	*-0.0096*
2nd Quintile x Conservative	-0.00332	-0.00322	-0.00451
	-0.00636	*-0.0068*	*-0.0071*
4th Quintile x Conservative	**0.0214****	**0.0192****	**0.015**
	-0.00896	*-0.00961*	*-0.01*
5th Quintile x Conservative	-0.0586	-0.065	-0.0657
	-0.0664	*-0.0663*	*-0.0659*
Unemployed		-0.0167***	-0.0193***
		-0.00559	*-0.00595*
Demographic Controls	No	Yes	Yes
Social Transfer Controls	No	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Constant	0.991***	0.969***	0.957***
	-0.0154	*-0.0227*	*-0.0241*
Observations	4,721	4,721	4,721
R-squared	0.635	0.636	0.637

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

It cannot be inferred with certainty that this unexplained variance is surely due to the distinct approaches these parties have towards family policy. However, given the prevalence of tax allowances and earnings related schemes in the discourse of conservative parties and the fact that the poorest are typically jobless, there is sufficient ground to make such a statement.

There are several limitations to the results above. The TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések) does not cover extensively all the social strata of Hungary. For example, the Roma population which faces high poverty rates is typically undercovered. Additionally, while there is all-encompassing information regarding income and other structural characteristics, the fact that it is a cross section dataset limits the results of this model since the

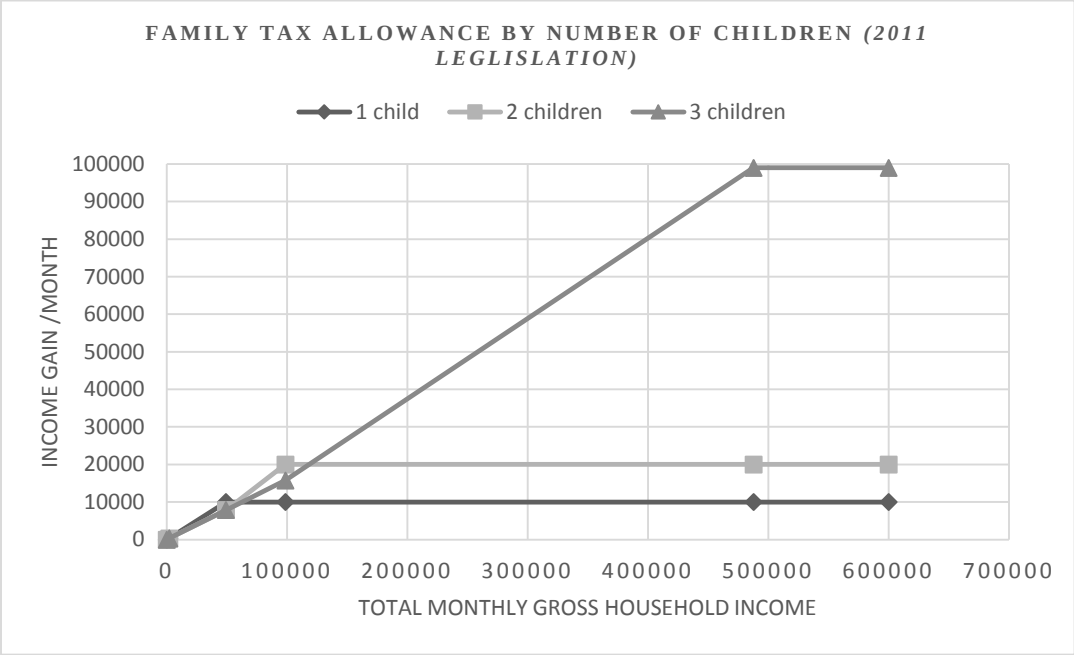
movement of the same household cannot be observed. Further, the best way to measure the income inequality may not be through the income gap and its correlation with the position in the distribution given that they are jointly determined. Despite its limitation, this model does justice to a descriptive account of the correlations rather than evaluate the specific impact of a certain policy. It finds substantial evidence of increased inequality levels for the poorest during right-wing rule. To be more precise I move on with a Diff-in-Diff model in analysing the introduction of tax allowances and non-indexation of family allowance.

5. Analysing the Introduction of the Family Tax Allowance in 2011

The second message from the literature review was that the last two alterations to policy will be especially troublesome for the poor households and it is the richer families' share of benefits that will be enlarged as a consequence. This is to some extent consistent with the findings above as there is evidence of an association between a bigger gap in the lowest quintiles and conservative rule. Additionally, social transfers explained a part of the higher gap for the better-off. Given these indicative findings, this chapter focuses on a more detailed analysis of the introduction of tax allowances in 2011.

While concessions based on number of children are a way of redistributing from the childless households to those with children (O'Donoghue and Sutherland 1999), this mechanism does not explain the whole story in Hungary. The current family tax arrangement entails a significant redistribution towards the economically better off households, rather than all of families with children. As explained in the last part of subchapter 3.2, the ability of claiming the full tax allowance is possible if the household has a large enough taxable base. Given that the ability of claiming the full allowance is largely determined by the amount of the taxable base, then it follows that the better-off households benefit from this scheme. The way the system is designed is that household with three children and the same level of income as one with two, may receive less per child. It seems that in addition to negative redistribution, there is an in-built incentive for having as much children as "one can afford". A detailed diagram of the gains from the family tax allowance with respect to total household income is provided below to facilitate the understanding of the scheme (See Figure 5).

Figure 4 - Family Tax Allowance Diagram (2011)



Source: Author's Calculations from Tax Allowance (name in Hungarian) legislation 2011.

5.1 Description of Data

The data used for this exercise is the latest available EU-SILC 2012/20010 European Union Statistics on Income and Living Conditions) survey. The micro dataset is of a panel structure and contains information on elements of income and living conditions of households as well as characteristics of its members. An additional benefit of this dataset is it has separate records for child related allowances from different allowances, but the flip side is that it is aggregated to the household level and does not allow the detailed separation as the TÁRKI Household Monitor survey (TÁRKI Háztartás Monitor Jelentések). The included years in the data set are 2009-2014[5]. EU-SILC provides all monetary variables in euros, but it also provides the exchange rate for each year. Thus, I have converted all monetary variables used in Hungarian Forint (HUF) and deflated

[5] The sample size for each can be found in the table 7 in the Appendix.

them to get the real value by using the Eurostat Harmonised Consumer Price Index (HCPI) which has 2005 as base year. Real values are necessary to filter out effects of inflation and as well show the actual change in consumption power.

The outcome variable used in the total disposable household disposable income. The treatment dummies for the first specification are constructed based on the eligibility diagram provided above extrapolated from the 2011 legislation, taking the value 1 if the unit is able to claim the full family tax concession. The main explanatory regressor is the interaction term between the constructed treatment dummy and year 2012, the post-reform period.

Based on summary statistics of trends I decided to include two set of control variables to account for other changes which differentiate these two groups and may thus bias the estimation. These are demographic and social transfers controls. The first group includes education level of household head, the labour status, other social transfers, and the size of households. An important control is labour status given that unemployed may not benefit from this amount and may thus bias the results. The original names and the detailed description of the variables as indicated by EU-SILC can be found in the Appendix for further reference.

5.2 Outlining the Identification Strategy

I use a Difference – in – Differences (DiD) estimator to capture the reform's impact on the income levels of families with children. Applying this approach to the issue in question allows me to consider this policy change as a "natural experiment". In doing so I compare the changes in trends of household income before and after the shift in policy for the targeted and comparison units. There are two main moderately strong assumptions for the DiD estimator(Blundell and Dias

2002). The first one is that the composition of the two groups must be the same over time. Otherwise, the changes that are driven by selection or group related effects will be wrongly attributed to the impact of the policy. In essence, the two groups should not necessarily have the same outcome mean, but they should undergo same trends, i.e. same differences prior to the policy reform. Looking at not only disposable income but also other monetary assets, I find no significant trend differences[6]. Further, the common trends assumption is supported by the fact that regional and other characteristics are similar in the treatment and control groups before the policy. The second assumption is that both groups must be affected by time-varying factors. Anticipation of policy reform is also not an issue in this case, because the time elapsed from potential indications of a shift in policy is not long enough to alter behavior towards child birth. The policy may indeed have an impact on work decisions, but that is beyond the scope of this thesis.

The equations of the following regressions are present below. I defined the category which I want to find the effects for as treatment for simplicity, but it is essentially aiming to capture the target group, who the policy is supposed to have an impact on.

$$Y_{it} = \alpha + \gamma * target + \lambda * d_t + \delta(target * d_t) + \beta_k \times X_k + \varepsilon_{it}$$

$$\alpha = E[Y_{it}|s = target, t = 2010] = \gamma_{comparison} + \lambda_{20}$$

$$\gamma = E[Y_{it}|s = target, t = 2010] - E[Y_{it}|s = control, t = 2010] = \gamma_{target} - \gamma_{comparison}$$

$$\lambda = E[Y_{it}|s = target, t = 2012] - E[Y_{ist}|s = control, t = 2010] = \lambda_{2012} - \lambda_{2010}$$

$$\delta = \{E[Y_{it}|s = target, t = 2012] - E[Y_{it}|s = target, t = 2010]\} - \{E[Y_{it}|s = comparison, t = 2012] - E[Y_{ist}|s = comparison, t = 2009]\}$$

From the equation outlined above, the impact of the policy on the targeted group, would be parameter δ, the difference in differences attributed to the policy. In order to control for other

[6] For complete results, see Table 8 in the Appendix

characteristics, I included the vector X_k, which has information on demographic characteristics, such as size and type of household and education level of parents. Given that both other social transfers and household characteristics may be somewhat different from comparison groups (see table 9 in the appendix), I include them as controls to partial out their effect.

The straightforward way to define treatment is to distinguish between groups that could claim the full eligible tax (a constructed dummy) and the ones that are not able to do so while restricting the sample to only households with at least one child over the age of 18. In this way, if δ is significant and positive even after controlling for other effects, then it can be said that the higher difference for this group is due to tax allowances. This identification has its limitations considering that even families that were not able to claim the full amount still got some monetary gains from this policy (16% of income) and the shift of being eligible to claim the full amount is not really a jump, but rather a flat sum as I showed in the tax diagram provided above. In addition, it can only show whether the target group is better off in the post-reform period, but does not reveal whether it is due to tax allowance, because the dummy is just calculated based on the eligibility rules rather than actual take up rate.

A second way to identify the impact of the reform is to compare both the poorest and the better-off households to similar ones that are not eligible for this allowance, i.e. those without the children. I define the poorest households as those at risk of poverty (60% of national median income) and the better-off those above that cut-off line. A similar approach has been applied before by Eissa and Liebman (1995) measuring changes on female labour supply after the introduction of Earning Tax Allowances. The main criticism for this approach is that the comparison/control group used does not satisfy the first condition of common macro effects.

In light of these common objections to using the households without children as comparison groups, I further restricted the model to only households with children and compare the two (at-risk-of-poverty and not at-risk-of-poverty) given that they follow similar trends. Moreover, controlling for demographic characteristics of the households as well as other benefits and social transfers, reduces the potential bias of the coefficient.

5.3 Results and Robustness Checks

This subchapter summarises and interprets the results of the three specifications outlined above. In the first regression presented in table 3 below, the effect of being able to claim the full eligible tax amount is captured by the interaction term and it seems to significantly increase the household's total income[7]. However, once I partial out other key characteristics such as size of households, education level and, more importantly, labor market status (i.e. whether the household head is unemployed), the interaction term shrinks in magnitude in the subsequent regressions (2) and (3). It may be implied that ability to claim full amount is initially associated with higher income, because the comparison group have a pool of unemployed heads of household that lessens the outcome mean.

Assuming that all others elements are equal, the gain from being able to fully claim tax allowance is associated with a gain of approximately HUF 10000 per month (121 291 per year). This estimated effect is similar to the intent-to-treat effect given that I have no information on actual

[7] For full output results, see table 10 in Appendix.

take-up rate of this element from eligible families. The results seem quite plausible given that monthly increase is equal to the amount received per one child according to the legislation.

Table 3 - Model 2 : Summary of Results 1

	Dependent Variable: Real Household Disposable Income		
	Baseline (1)	Controls (2)	Controls + Unemployment (3)
Year 2012	76,352	3,373	143,442**
	(65,719)	(50,707)	(57,317)
Eligible	387,053***	543,583***	544,290***
	(55,450)	(67,032)	(65,847)
Year 2012 x Eligible	**135,330***	**207,729*****	**121,291****
	(77,413)	(61,388)	(60,538)
Unemployed			**-201,054*****
			(35,164)
Year 2012 x Unemployed			**-84,208****
			(39,651)
Controls	No	Yes	Yes
Constant	1.650e+06***	-98,079	-87,983
	(47,922)	(101,090)	(104,543)
Observations	3,932	3,932	3,932
R-squared	0.026	0.326	0.350

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
The complete output results can be found in Appendix C

However, this specification does not capture potential heterogeneous impact the policy may have depending on the income level. Indeed, part of it is captured in the unemployment and post reform interaction term which is significant and substantially negative, testifying thus the worsening trends for this group that is left out of the targeting in this reform. Thus, in an attempt to test further whether the poorest are indeed getting poorer and the better off are moving further away the mean, I follow with the second specification.

In the following specification, I compare the status of being at-risk-of poverty for similar households with and without children. The comparison group of households without children has been followed before albeit for different outcome measures Eissa et al (1995). Assuming that households follow similar trends independent of having children or not, any changes can be attributed to family policy and in this particular case, tax allowance and loss of real value of family allowance. The output results from the regressions of this specification are outlined in the table below[8].

Table 4 - Model 2- Summary of Results 2

	Dependent Variable: Real Household Disposable Income			
	(4)	(5)	(6)	(7)
year 2012	-4,895	-7,809	39,454*	62,127***
	(5,868)	(6,218)	(20,968)	(22,955)
At-risk-of-Poverty	56,269***	62,180***		
	(18,711)	(19,388)		
year 2012 x At-risk-of-Poverty	**18,074**	**15,135**		
	(17,192)	(17,571)		
Not At-risk-of-Poverty			66,300*	38,242
			(40,291)	(40,219)
year 2012 x Not At-risk-of-Poverty			**155,247*** **	**175,758*** **
			(39,058)	(38,666)
Unemployed		**-64,545*** **		**-159,051*** **
		(8,288)		(22,213)
year 2012 x Unemployed		**14,544**		**-68,521** **
		(9,529)		(27,176)
Controls	No	Yes	Yes	Yes
Constant	540,327***	535,459***	884,290***	849,298***
	(9,501)	(9,521)	(32,386)	(32,901)
Observations	4,279	4,279	10,081	10,081
R-squared	0.211	0.237	0.280	0.293

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

[8] See table 11 in the Appendix for full output results.

From the results of regressions (4) and (5) presented above the income of households with children that are at risk of poverty is not significantly different from those without them. Thus, it can be inferred that the family policy followed in the recent shift has yielded no gains for the poorest households. This lack of changes in trends may imply that the tax allowances did not reach the poorest. Even when controlling further for demographic characteristics and labour market status, there fails to be a significant difference between the two groups.

Turning to the families who are doing slightly better economically, the results presented above reveal a different story. Regression (6) and (7) show a positive and significant gain for the families with children as compared to the ones without them even after controlling for the level of other social transfers and demographic characteristics. Assuming that with the included controls the trends of the two groups should follow similar patterns, then the additional gain for households with children can be attributed to the introduction of family tax allowances. The estimated increase in total household income from this policy reform is somewhat higher than the first specification, at around HUF 15000 per month on average. Given that poorest households seem to be in no better position than prior to the reform and the slightly better off have had a boost in income, these findings testify for an increase in inequality in the pool of households with children.

Lastly, I test whether the positive gain in the slightly better off group is really due to tax allowances, rather than distinct macro effects for the different groups as is commonly criticised when using households without children as control(Blundell and Dias 2002). I restrict the sample to only units with at least one individual below 18 years of age and then I use the same division of

the poorest as those households categorised as at-risk-of-poverty and those that lie above it. The table below provides a summary of the regression outputs[9].

Table 5 - Model 2 - Summary of Results 3

	Dependent Variable: Real Household Disposable Income	
	(8)	(9)
year 2012	67,088**	157,029***
	(33,028)	(45,079)
Not At-risk-of-Poverty	872,313***	807,079***
	(38,348)	(37,582)
Year 2012 x Not At-risk-of-Poverty	**142,342*** **	**104,547** **
	(46,366)	(48,795)
Unemployed		**-143,023*** **
		(33,905)
Year 2012 x Unemployed		**-79,372** **
		(37,207)
Controls	No	Yes
Constant	185,015***	200,062***
	(52,916)	(61,257)
Observations	3,932	3,932
R-squared	0.373	0.386

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Comparing only households with children, regression (7) and (8) above reveal that the slightly richer households are doing significantly better in 2012. The higher difference in 2012 shrinks once I control for labour status for the employment status of the head of household and the demographic and social transfer controls, but it still remains significant statistically and economically at an amount of HUF 104547 on average. Interestingly, the coefficient is of similar

[9] For the full output of the regression, please see table 12 in the Appendix.

magnitude to the first specification where treatment was defined as ability to claim the whole amount of tax allowance. This gives further consistency to the results and identifies the households without children as an adequate comparison group. As in the previous case given that slightly better off families are facing somewhat better income levels due to this policy reform is good news in itself, but given that the poorest are not gaining, then this will increase the gaps in the income distribution between the families with children worsening inequalities.

Comparing the three specifications, there are several findings that stand out for families with children. The poorest households have not fared better or worse after the family policy reform, their situation is unchanged. The slightly better off ones are facing relatively higher incomes at around HUF 8000-15000 per month in all the three specifications. A particularly badly hit category after the reforms seems to be households with an unemployed individual as the head. These three findings may indicate that inequality levels have been increasing and, thus, the poorest are being further excluded from the social security system.

There are several limitations to these estimations. First and foremost, there have been major shifts in other strands of welfare policies following a sort of restructuring of the welfare state in the recent years(Scharle and Szikra 2015). These reforms undoubtedly have a serious impact on the earnings of Hungarian households, with and without children. While I try to partial out these simultaneous effects by controlling for levels of social transfers, demographic characteristics as well as trying out different specifications, there still may be some bias in the resulting estimates given the multifaceted changes occurring in the social provisions. Moreover, even if I assume that the other policy changes have been duly taken care of, there remains the issue that the dummies, especially the ones in the first specification are constructed based on eligibility. This makes the estimated coefficient similar to an approximation of the intent to treat effect rather than the actual

treatment effect, given that there is no available data on take-up rates of these tax allowances. According to some estimates, about 10 to 20 percent of households only partially claim the tax allowances, while around 17% of eligible ones do not have access to it at all(Benedek, Firle, and Scharle 2006). However, Ferge (2001), for instance, debates those figures on the basis of aggregate data, and comes up with a much lower estimate of take-up. Lastly, focusing solely on cash transfers and not taking into account other in-kind benefits does not do justice to the real inequality levels and hardship faced by household with children similar to findings in Forster and Toth (2000).

6. Discussion of the Empirical Findings

The empirical analysis was mainly aimed at finding associations between income, inequality and poverty of households with children and the relation to different approaches from the two dominant political parties. It was not, thus, in itself an evaluation of a particular approach, but rather an overview and implications on inequality. It was inspired by findings in the qualitative research and the recent warnings on the peculiar design of the family tax allowances. In this chapter I summarise the findings and how they relate to the reviewed existing literature on this topic.

The first analysis finds some evidence of increased inequality in conservative years. The gap for the poorest seems to be higher while the one for the fourth quintile disappears once I account for social transfers. While it cannot be certain that it is due to family policy, it still reveals that the households with children are worse off in those years. This finding is in line with qualitative research that outlines the right-wing governments as less prone to targeting the poorest in Hungary(Inglot, Szikra, and Raț 2011; Szikra 2014; Gyarmati 2010) as well as in Europe(Chzhen et al. 2014). I thus add to this literature by providing empirical support to the role of right-wing parties in Hungary with respect to family policy. This analysis also contributes to the broader debate on universalism and targeting by showing that given that the gap was smaller for the poorest when there was a significant level of targeting within universalism as in the socialist rule years, which is in line with findings for other countries by Van Lancker and Van Mechelen (2015).

The second part of the empirical investigation is focused only on the recent reform, the introduction of family tax allowances and the lack of extension of benefits for the poorest. The family allowance has shrunk in real value. Similar to earlier microsimulation studies on redistribution by Benedek and Lelkes (2008) and Tóth and Virovácz (2013) for the most recent

analysis on tax reforms, I also find that the poorest are either excluded from the windfall gains of the new policy or they are worse off in cases where the head of household is unemployed. The better off families tend to gain from these by an amount in the range of HUF 8000-15000 per month. This finding contributes to the previous research with precise estimates for households. In addition, my results are also in line other studies on different countries which also undertake microsimulation exercises have also found that tax allowances rarely reach the poorest household(Steiner and Wrohlich 2008; Bargain 2012; Hills et al. 2014). Consequently, this analysis solidifies prior conclusions on the impact of family tax allowances, and adds an additional case study, that of Hungary, to the existing pool of research.

As was mentioned in both chapter 4 and 5, these methods and their subsequent estimations have their limitations. I cannot conclude with high certainty that all the observed variation in either household income gap or level was due to family policy. Nonetheless, there seems to be substantial indicative evidence keeping in mind that household income is dependent to various a complex socio economic elements. There needs to be further development of this research in order to single out the impacts of different policies. For example, to further estimate the precise impact of the family tax allowance in Hungary can look at the changes in income levels when this tool was abolished in 2006 (i.e. the counterfactual) and compare it with these estimates.

7. Conclusion

In this thesis I investigated the relationship between family policy approaches and income inequality of households with children. It was partially inspired by the peculiarity of the fact that Hungary tops the list of spending on families with children and yet has high poverty and inequality rates. The literature on family policy revealed two major conclusions regarding my question on Hungary. First, family policy under left-wing governments has focused relatively more on the poverty dimension and has been more flexible in their approach depending on the prevailing economic circumstances, while right-wing ones have favoured demographic objectives comparatively independent of the financial constraints(Scharle and Szikra 2015; Inglot, Szikra, and Rat 2013; 2011; Gyarmati 2010). Second, the introduction of family tax allowances, is heavily targeted at upper and middle-income families with children whereas no substantial support is extended to the poorest ones(Szikra 2014; Tóth and Virovácz 2013).

In setting out to test these two messages, first I provided an overview of the association between party rule and income gap with respect to position in the income distribution for the 2000-2014 period. To do this I used a pooled OLS regression with the first data source, TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések). Second, I tested the changes in household income due to the introduction of the tax allowance in 2011 focusing especially on the households at the bottom of the distribution. This was done by a Difference-in-Differences method applied to the second data source, the EU-SILC longitudinal micro data.

The first conclusion from this study was that families with children at the lowest income quintile face on average a 2 percent higher gap from the median in years when conservative parties are in power, whereas the gap for the fourth quintile loses significance once I control for social

transfers. This is consistent with the first conclusion mentioned above that was derived from the literatue review. The second finding was that the introduction of the family tax allowances have no significant impact for the families at the bottom of the distribution while the rest gain on average between the ranges of HUF 10000-15000 per month. My results are in line both with prior research on tax redistribution in Hungary and other similar studies on different countries (Steiner and Wrohlich 2008; Bargain 2012; Hills et al. 2014; Tóth and Virovácz 2013; Benedek, Firle, and Scharle 2006).

While these models have their limitations as outlined in each respective chapter, the evidence provided in this analysis substantially complements the extensive qualitative literature with empirical findings on inequality patterns due to different family policy approaches, and confirms the previous microsimulation conclusions on the evaluation of tax allowances.

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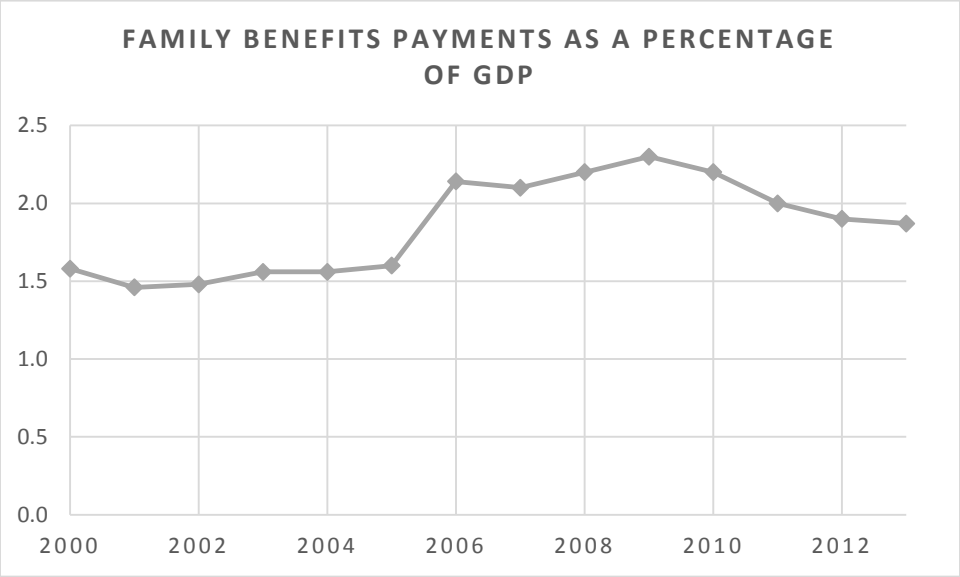
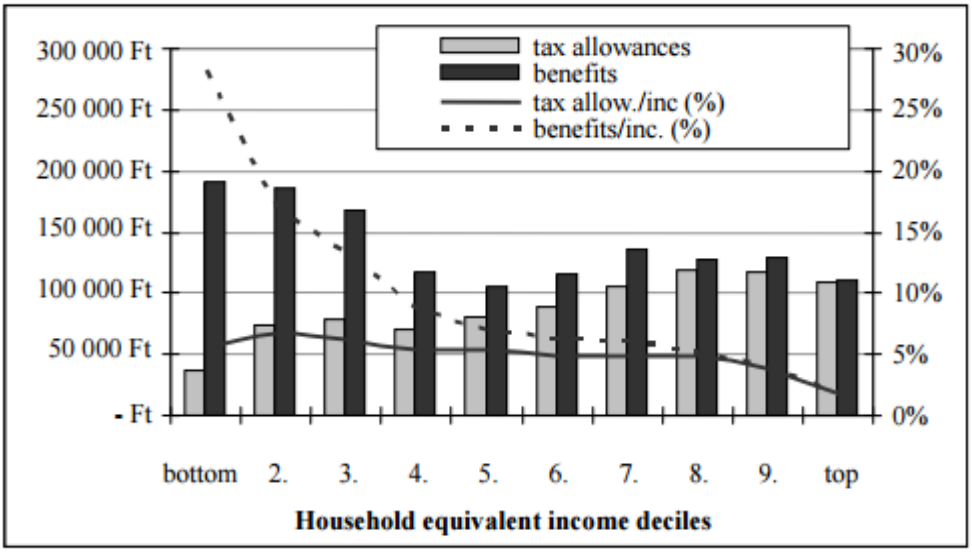
Appendix

Figure 5 - Family Benefits as Percentage of GDP



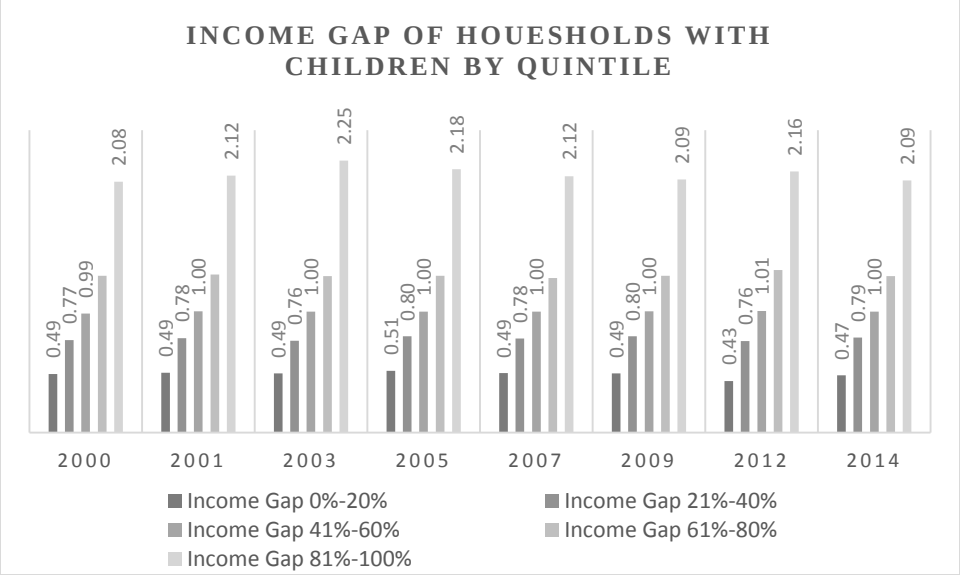
Source: Hungarian State Treasury

Figure 6 - Tax allowances and Benefits per households by deciles (Benedek and Lelkes 2007)



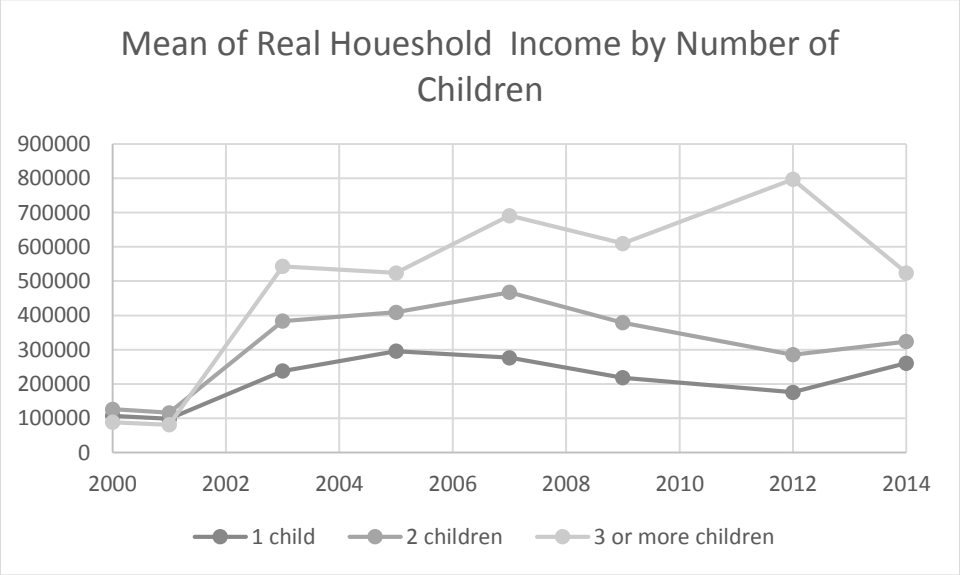
Source: Benedek and Lelkes 2007

Figure 7 - Income Gap By Quintile and Year (2000-2014)



Source: Author's calculations based on TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések)

Figure 8 - Mean of Real Household Income by Number of Children 2000-2014



Source: Author's calculations based on TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések)

Table 6 - Model 1 - Sample Size by Year

year	sample size
2000	734
2001	734
2003	815
2005	584
2007	537
2009	497
2012	473
2014	380

Source: Author's calculations based on TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések)

Table 7 - Mean of Real Household Income by Party Rule and Years

	Mean of Real Income		Difference
	Socialist	Conservative	
First Quintile	234030.5	108373.8	125656.7***
	7849.815	*6851.269*	*10501.19*
Second Quintile	254498.7	122466.7	132032.1***
	9232.065	*7731.14*	*12106.77*
Third Quintile	269953.8	118937.2	195337.7***
	12185.37	*8065.797*	*7743.241*
Fourth Quintile	316516.2	155029.9	161486.3***
	16010.85	*10357.59*	*19196.15*
Fifth Quintile	758513.8	438597.8	319915.9***
	62278.79	*75431.44*	*97152.44*

Source: Author's Calculations from TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések

Period included: 2000-2014 (Standard errors in italic)

Table 8 - Mean of Real Income Gap by Party Rule

	Mean of Real Income Gap		Difference
	Socialist	Conservative	
First Quintile	0.496	0.475	0.021***
	0.005	*0.006*	*0.008*
Second Quintile	0.780	0.773	0.008*
	0.003	*0.003*	*0.004*
Third Quintile	1.002	0.998	0.004
	0.003	*0.003*	*0.005*
Fourth Quintile	1.293	1.310	-0.017**
	0.005	*0.006*	*0.008*
Fifth Quintile	2.173	2.110	0.063
	0.049	*0.044*	*0.067*

Source: Author's Calculations from TÁRKI Household Monitor Survey (TÁRKI Háztartás Monitor Jelentések) (2000-2014) (Standard errors in parenthesis)

Table 9 - Model 1 - Complete Output Results

	(1)	(2)	(3)
VARIABLES	r_inc_gap	r_inc_gap	r_inc_gap
r_inc_dist_1	-0.506***	-0.497***	-0.488***
	(0.00614)	(0.00802)	(0.00826)
r_inc_dist_2	-0.222***	-0.218***	-0.215***
	(0.00440)	(0.00498)	(0.00521)
r_inc_dist_4	0.290***	0.286***	0.286***
	(0.00604)	(0.00743)	(0.00765)
r_inc_dist_5	1.171***	1.160***	1.157***
	(0.0495)	(0.0519)	(0.0513)
conservative	-0.00311	-0.00182	-0.0118
	(0.0186)	(0.0206)	(0.0200)
r_inc_dist_1_con	-0.0172*	-0.0158*	-0.0185*
	(0.00930)	(0.00942)	(0.00960)
r_inc_dist_2_con	-0.00332	-0.00322	-0.00451
	(0.00636)	(0.00680)	(0.00710)
r_inc_dist_4_con	0.0214**	0.0192**	0.0150
	(0.00896)	(0.00961)	(0.0100)
r_inc_dist_5_con	-0.0586	-0.0650	-0.0657
	(0.0664)	(0.0663)	(0.0659)

not_working		-0.0167***	-0.0193***
		(0.00559)	(0.00595)
not_working_other		-0.0255**	-0.0279**
		(0.0119)	(0.0121)
highest_ed_hh_uni		0.00693	0.00559
		(0.00565)	(0.00581)
highest_ed_hh_sec		-0.00428	-0.00631
		(0.00390)	(0.00413)
highest_ed_hh_pri		-0.00268	-0.00191
		(0.00461)	(0.00453)
r_unemp_ben			-7.73e-08*
			(4.29e-08)
r_child_care_grant			1.38e-08
			(8.34e-08)
r_child_care_fee			9.93e-08
			(9.30e-08)
r_child_care_allowance			1.37e-08
			(3.86e-08)
r_total_social_inc			-9.66e-08***
			(3.10e-08)
r_total_transfer			-1.91e-07***
			(5.65e-08)
hh_size		0.0132*	0.0237***
		(0.00693)	(0.00819)
YEAR FE	YES	YES	YES
Constant	0.991***	0.969***	0.957***
	(0.0154)	(0.0227)	(0.0241)
Observations	4,721	4,721	4,721
R-squared	0.635	0.636	0.637

Robust standard errors in parentheses
*** p<0.01, ** p<0.05,*p<0.1

Table 10 - Model 2 - Sample Size by Year

Year	Observations	Percent
2009	3,331	12.15
2010	5,594	20.4
2011	9,722	35.46
2012	8,769	31.98
Total	27,416	100

Table 11 -Model 2 - Summary Statistics and Tests

Monetary Elements in the Model	Differences of Differences of Monetary Elements in the Model					
	(2011-2010)			(2012-2011)		
	Not Eligible for Full Tax Allowance	Eligible for Full Tax Allowance	Difference in Differences	Not Eligible for Full Tax Allowance	Eligible for Full Tax Allowance	Difference in Differences
Total Disposable Houshold Income (r_huf_tot_hh_disp_inc)	-76622	-43707	-32915.1	-5897	-17725	-148812***
	12789	*25246*	*26962.44*	*1129*	*8352*	*15426.19*
Total Household Family Benefits (r_huf_fam_allow_g)	-45902	102911	11828.71**	-8524	-34252	25728.34***
	6730	*16945*	*5062.052*	*899*	*4914*	*3143.072*
Total Household Housing Allowance (r_huf_house_allow_g)	-155	1317	-1471.84*	-552	-299	-252.6617
	420	*715*	*854.0151*	*163*	*358*	*358.18*
Total Household Income without Social Transfers (r_huf_y_wo_socandothertrans)	-47702	-13604	-34097.9	-27556	149495	-177050.9***
	13167	*26695*	*27963.77*	*6929*	*17417*	*15873.26*

Authors' Calculations based on EU-SILC longitudinal microdata (2009-2012); Standard Errors in Italic ; *** p<1%, **p<5%, * p<10%

Table 12 - Model 2 - Complete Output Results 1

VARIABLES	(1) r_huf_tot_hh_disp_inc	(2) r_huf_tot_hh_disp_inc	(3) r_huf_tot_hh_disp_inc
y2012	76,352	-1,604	122,805**
	(65,719)	(51,448)	(58,752)
elig_fam_ta	387,053***	532,200***	527,492***
	(55,450)	(67,434)	(66,991)
y2012elig	135,330*	201,128***	119,406*
	(77,413)	(62,146)	(62,034)
unempl			-166,613***
			(33,912)

unempl_2012			-81,390**
			(40,369)
r_huf_house_allow_g		-3.182***	-2.425***
		(0.961)	(0.779)
nr_child		286,153***	301,310***
		(28,599)	(28,695)
edu_3		1.074e+06***	1.063e+06***
		(47,180)	(47,754)
edu_2		456,620***	487,883***
		(23,387)	(22,879)
Constant	1.650e+06***	-87,807	-77,238
	(47,922)	(102,103)	(106,285)
Observations	3,932	3,932	3,932
R-squared	0.026	0.324	0.343

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13 - Model 2 - Complete Output Results 2

	(1)	(2)	(3)	(4)
VARIABLES	r_huf_tot_hh_disp_inc	r_huf_tot_hh_disp_inc	r_huf_tot_hh_disp_inc	r_huf_tot_hh_disp_inc
y2012	-4,895	-7,809	39,454*	62,127***
	(5,868)	(6,218)	(20,968)	(22,955)
arop_ch	56,269***	62,180***		
	(18,711)	(19,388)		
arop_ch_2012	18,074	15,135		
	(17,192)	(17,571)		
unempl		-64,545***		-159,051***
		(8,288)		(22,213)
unempl_2012		14,544		-68,521**
		(9,529)		(27,176)
r_huf_house_allow_g	-0.562***	-0.274	-3.327***	-2.413***
	(0.201)	(0.192)	(0.901)	(0.703)
r_huf_soc_trans	0.218***	0.216***	-0.0263	-0.00559
	(0.00966)	(0.00945)	(0.0171)	(0.0171)
nr_child	9,586	18,222**	70,226***	96,866***
	(8,190)	(8,773)	(18,219)	(18,137)
edu_3	132,746***	150,340***	948,267***	961,143***
	(9,450)	(9,699)	(25,437)	(25,338)
edu_2	69,834***	94,304***	425,677***	465,259***
	(4,496)	(5,064)	(14,150)	(14,199)
narop_ch			66,300*	38,242
			(40,291)	(40,219)

narop_ch_2012			155,247***	175,758***
			(39,058)	(38,666)
Constant	540,327***	535,459***	884,290***	849,298***
	(9,501)	(9,521)	(32,386)	(32,901)
Observations	4,279	4,279	10,081	10,081
R-squared	0.211	0.237	0.280	0.293

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14 - Model 2-Complete Output Results 3

VARIABLES	(1) r_huf_tot_hh_disp_inc	(2) r_huf_tot_hh_disp_inc	(3) r_huf_tot_hh_disp_inc	(4) r_huf_tot_hh_disp_inc
y2012	67,088**	157,029***	209,430***	261,575***
	(33,028)	(45,079)	(32,858)	(36,123)
narop_ch	872,313***	807,079***		
	(38,348)	(37,582)		
narop_ch_2012	142,342***	104,547**		
	(46,366)	(48,795)		
unempl		-143,023***		-143,023***
		(33,905)		(33,905)
unempl_2012		-79,372**		-79,372**
		(37,207)		(37,207)
r_huf_house_allow_g	-2.849***	-2.423***	-2.849***	-2.423***
	(0.814)	(0.686)	(0.814)	(0.686)
r_huf_soc_trans	0.122***	0.203***	0.122***	0.203***
	(0.0427)	(0.0436)	(0.0427)	(0.0436)
nr_child	41,034**	59,408***	41,034**	59,408***
	(17,426)	(17,044)	(17,426)	(17,044)
edu_3	910,567***	899,279***	910,567***	899,279***
	(51,755)	(52,874)	(51,755)	(52,874)
edu_2	330,691***	350,591***	330,691***	350,591***
	(25,120)	(24,462)	(25,120)	(24,462)
arop_ch			-872,313***	-807,079***
			(38,348)	(37,582)
arop_ch_2012			-142,342***	-104,547**
			(46,366)	(48,795)
Constant	185,015***	200,062***	1.057e+06***	1.007e+06***
	(52,916)	(61,257)	(63,620)	(66,196)
Observations	3,932	3,932	3,932	3,932
R-squared	0.373	0.386	0.373	0.386

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1