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A fresh look at an old question: is pro-poor targeting of cash transfers more effective than universal systems at reducing inequality and poverty?

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Table of contents

Table of contents 3

Abstract 4

1. Introduction 5

2. Motivation and existing evidence 5

3. Approach and methodology 7

4. Data 9

5. Trends in income poverty, inequality and the concentration of cash transfers 10

6. Concentration of gross universal transfers and gross social assistance 16

7. Assessing the effectiveness of cash transfers on poverty and inequality reduction 19

    7.1 Poverty reduction 20

    7.2. Inequality reduction 24

8. Summary 27

References 28

Abstract

This paper presents findings on the changing effectiveness of cash transfers and income taxes on inequality and poverty reduction in four EU countries – the UK, Italy, Sweden and France. We use long time series (spanning four decades) to examine trends within countries over time and between countries at different points in time. Recent evidence has suggested that the relationship between concentration of cash transfers and their redistributive effectiveness has become blurred over time. We find much more conclusive evidence of a negative relationship within countries over time. The results show a negative relationship between the concentration of cash transfers net of direct taxes and their effectiveness in terms of reducing poverty and inequality. The strength of the relationship varies between countries and in some cases between the all age and the working age populations. The evidence suggests that caution should be applied to relying on bivariate cross-country estimates and that more should be done to establish and verify empirical relationships within countries over time using the rich data sources that are now available. These findings re-open the debate on the most effective design of cash transfer and direct tax systems.

Keywords: Inequality, poverty, redistribution, cash transfers, welfare

JEL code: I32, H23, D31

1. Introduction

The relationship between the degree of targeting of cash transfers and their effectiveness in producing a more equitable distribution of income has been the focus of a number of research papers. Arguably the most influential in this field is the paper by Korpi and Palme (1998) which presented empirical cross-country estimates suggesting that more targeted cash transfers systems were less effective in terms of reducing inequality than more universal systems. Recent evidence has challenged this finding (Marx, Salanauskaite and Verbist, 2013; Kenworthy, 2011). These more recent studies have shown that with a wider selection of countries than that used by Korpi and Palme and more recent observations, the relationship is much less conclusive and in many cases no longer holds.

The policy interest in understanding the relationship between concentration of cash transfers (most commonly operationalised through means-testing) and redistributive effectiveness intensifies the need for clear answers. The finding that welfare systems which deliver more concentrated cash transfers are less effective at reducing poverty and inequality, as Korpi and Palme acknowledge, might appear to be counterintuitive. They refer to it as a "Paradox". The argument that limited resources should be focused on those most in need has intuitive appeal. Korpi and Palme, and others, argue that a more inclusive welfare state based around a universal system of entitlements leads to wider support among the electorate, producing a sustainable, generous system of cash transfers and this is key to understanding why they deliver lower poverty and inequality despite some 'inefficiencies'. The authors who conducted the more recent research which finds a breakdown in the relationship also stress the importance of a 'generous' system of cash transfers (Marx et al., 2013).

In this paper we take a new approach, rather than simply comparing the bivariate relationship between the concentration of cash transfers and their redistributive impact across a number of countries at different points in time we focus on four countries with contrasting welfare systems. This allows us to provide an in-depth analysis of the evolution of welfare systems in these countries using a long time series (spanning four decades) to examine trends within countries over time and between countries at different points in time.

2. Motivation and existing evidence

Cash transfers are made for a number of reasons. As Hills (2014) outlines it is not simply that welfare states redistribute income from those who are well-off to those who are disadvantaged (labelled the "Robin Hood" objective by Barr (2001)) but to a large extent to assist individuals and families in smoothing income between periods of their lives when income is relatively high to periods when it is lower (through unemployment or retirement, for example) or when needs are greater (raising a young family) (labelled the "Piggy Bank" objective by Barr (2001)). The balance between these two objectives does vary between countries and there is some evidence that countries with greater targeting do less in terms of redistribution across the lifecycle and conversely countries with a higher degree of targeting cash transfers to low-income households are more redistributive (Ståhlberg, 2007). So at least to some degree an assessment of the effectiveness of the net cash transfer system not only tells us the extent to which the welfare state reduces inequality and the incidence of poverty between individuals and their families at a point in time but it also tells us about the effectiveness of the system in terms of smoothing our own income over the lifecycle between times of relative need and relative plenty.

The rise in income inequality within many rich countries over the past four decades has increasingly attracted attention and raised concerns (Salverda et al., 2014; OECD, 2008; OECD, 2011; Brandolini and Smeeding, 2009; Stiglitz, 2012). Not only does rising income inequality portray an increase in the dispersion of economic and monetary resources but evidence suggests that higher income inequality is associated with greater inequalities in other domains (Salverda et al., 2014; Hills et al., 2010). This is hardly surprising given that money is used by individuals and families to secure better outcomes. The effectiveness of welfare states in terms of reducing inequality and the incidence of poverty is not simply of academic interest as understanding differences can help to improve the functioning of welfare states. Whiteford (2008) outlines how understanding the redistributive effectiveness of different systems can help the design of policies and their mix, particularly where governments are seeking to reform welfare systems.

The debate between those who argue for more or less targeting of cash transfers has a long history and is ongoing. Although this controversy did not start with Korpi and Palme's 1998 work it can certainly be regarded as a seminal contribution. They conclude their cross-country analysis by outlining what they note can appear to be counterintuitive to some:– "*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 to all, the less likely we are to reduce poverty and inequality"* (Korpi and Palme, 1998). Of course this was not the end of the debate but it was largely left unchallenged, at least empirically, until very recently. In 2011 Kenworthy updated Korpi and Palme's analysis using observations for the 1990s and 2000s and he concludes that the negative relationship between targeting and redistribution was less clear by 1995 and no longer evident by 2000/2005 (Kenworthy, 2011).

Marx, Salanauskaite and Verbist (2013) conduct an extensive analysis using the same set of countries as that examined by Korpi and Palme and supplementary analysis using a wider set of countries for which more recent data are now available. They conclude that the strong inverse relationship identified by Korpi and Palme no longer holds as a robust empirical generalisation. They suggest that this is to do with the selection of countries, the time period studied and aspects of the empirical specification. All three studies examine the relationship between targeting (concentration) and redistributive impact by comparing this bivariate relationship across countries. They are all in agreement that the generosity of the cash transfer system is a key contributory factor just as Kakwani highlighted before them that not just the degree of tax progressivity but also the average tax rate matters in terms redistribution (Kakwani, 1977). It is noteworthy that the extensive new analysis in Kenworthy (2011) and Marx, Salanauskaite and Verbist (2013) does not show the positive relationship between targeting and poverty or inequality reduction that might be naively expected.

The existing research has focused on comparing a set of countries at a point in time or at two or three points in time even though the debate on means-testing and progressive taxation is generally concerned with over time hypotheses. As Glennerster (2014) points out, Titmuss argued the case that "separate discriminatory services for poor people have always tended to be poor services" (or low benefit ones). Over time, he claims, it becomes easier to cut services and cash transfers for disadvantaged people, as the 'blame' for their predicament can be levelled at their inaction, when the majority of the electorate don't directly benefit. However, there is an alternative view suggesting that a targeted cash transfer system is more likely to be supported by the electorate based on the notion that money is 'wasted' on non-poor people in a universal system and therefore will receive less electoral support. The social legitimacy of differently targeted benefits is reviewed by van Oorschot and Roosma (2015) who highlight the vulnerability of narrowly targeted benefits overall and particularly during periods of austerity.

Another way in which the concentration of cash transfers can affect re-distributive effectiveness is through reduced take-up resulting from the stigma felt by those who are entitled to receive such transfers. Such arguments were put forward by Beveridge and Townsend and this may have changed over time but static analysis is unable to pick up any differences.

Welfare state provision not only affects post transfer behaviour and income but the existence and design of cash transfers can directly alter people's behaviour. Behavioural changes can affect the distribution of market income (pre-tax and transfer income) by either creating a disincentive for individuals to make alternative provisions for periods of loss of income (such as unemployment insurance or private pension provision) or simply deterring personal savings (especially where savings are included in a means-test). Also a cash transfer system that supplements low wages (such as housing subsidies and tax-credits paid to those in work) can distort the market by making it financially viable for workers to accept low paid jobs and incentivises employers to create jobs which are effectively subsidised by the welfare state.

All of these debates consider how welfare state regimes and the redistributive effectiveness of net cash transfer systems evolve over time. A static analysis would have to assume that a point in time represents a long-run equilibrium or steady-state but this is unlikely to be the case as cash transfers and taxation policy evolves under different governments and in response to the economic cycle. For example, unemployment reduces the market income of some individuals and the payment of unemployment benefit increases measures of redistributive effectiveness so comparing a set of countries at a point in time will be affected by the extent to which unemployment varies between countries as well as the redistributive effectiveness of unemployment benefit. It therefore makes much more sense to approach the topic by comparing the evolution of these trends and the relationships between them within and then between countries.

A recent review of the international evidence concludes that despite a considerable volume of research the universal versus means-tested debate is far from resolved (Gugushvili and Hirsch, 2014). In this paper we take a new approach which provides additional insight into the apparent changing relationship between the concentration of cash transfers and their redistributive effectiveness.

3. Approach and methodology

We largely follow the methodology previously adopted in the literature. This involves estimating the concentration of cash transfers and relating these figures to estimates of poverty and inequality reduction. Although Korpi and Palme motivate their analysis in terms of comparing countries classified according to different welfare regime types, based on entitlement to different benefits, in practice the empirical component of their paper simply compares countries based on the empirical estimates of cash transfer concentration. Marx et al.(2013) and Kenworthy (2011) also adopt this empirical approach. While simple, there are a number of important underlying assumptions regarding the counterfactual distributions of household income and counterfactual poverty rates which we discuss below.

Our measure of 'targeting' is the concentration coefficient, which in construction is closely related to the Gini coefficient, the difference being that the measure of income used to rank income units is different from that used to assess the distribution of income across ranked households/individuals. For the Gini coefficient the same measure of income is used to both rank individuals and to compute the share of income going to ranked positions. We rank individuals according to their household equivalised market income (income from

employment, capital (including voluntary individual pensions) and private transfers), and estimate the share of net cash transfers received within ranked positions.

As outlined in Van Kerm (2010) the Gini and concentration coefficient can be formulated in terms of covariance expressions:

$$\mathrm{GINI}(X) = -2\ \mathrm{Cov}\left(\frac{X}{\mu(X)},\ (1 - F(X))\right)$$

where X is a random variable of interest with mean μ(X), and F(X) is its cumulative distribution function. The Concentration coefficient measures the association between two random variables and can be expressed as:

$$\mathrm{CONC}(X, Y) = -2\ \mathrm{Cov}\left(\frac{X}{\mu(X)},\ (1 - G(Y))\right)$$

where G(Y) is the cumulative distribution function of Y. CONC(X, Y) reflects how much X is concentrated on observations with high ranks in Y. Smaller (more negative) values are related to higher degrees of concentration or 'targeting'.

The choice of the counterfactual distribution (Y) is important as it represents income and its distribution that is assumed to prevail in the absence of a welfare state (pre cash transfers, social contributions and income taxes).

We use two outcome measures to assess effectiveness. (1) An estimate of inequality reduction arising from the net cash transfer system which is measured as the difference in the Gini coefficient before and after net cash transfers. (2) An estimate of poverty reduction measured by the difference in poverty rates before and after net cash transfers.

We use the 'at risk of' income poverty rate measured by the proportion of individuals with income below 60% of median income. Household income is equivalised using the square root of household size (including children) and the unit of analysis is the individual.

Throughout we use market income and its distribution as the counterfactual. The assumption here is that market income is a reliable measure of what household income would be in the absence of direct taxes and gross cash transfers. This, of course, is unlikely to hold in practice as in the absence of a welfare state individuals and families would make alternative decisions/provision; unemployment insurance, pension provision and labour supply behaviour are likely to be affected. The underlying assumptions that there is no behavioural change related to the presence of targeted cash transfers or tax is unrealistic but it is not clear whether market income would be more or less equally distributed in their absence. Alternative counterfactual income measures such as gross income (market income plus gross cash transfers) and disposable income have also been used in the literature and evidence does show that the ranking of income units is affected by the choice of income measure but each measure has its advantages and disadvantages. As we are more interested in looking at changes overtime rather than the precise level this is less of an issue.

We present results for the all age population and the working age population (16-64 years) separately to exclude the age group for whom market income is least likely to provide a true counterfactual due to the dominant role of pensions.

Four countries have been selected for this study spanning a number of different welfare state types. Italy, a Southern European country which still relies on a family-based welfare system, has an ageing population reliant on increasingly burdensome public pensions and an

underdeveloped social assistance system. Out of the selection of countries Italy has the lowest rates of employment and the widest gender gap in employment. Expenditure on family and unemployment related cash transfers is relatively low in Italy. France is a member of the 'corporatist-statist' welfare regimes according to Esping-Andersen's typology (Esping-Andersen, 1990). France has the highest share of tax revenue collected through social security contributions, not just out of the selected countries but across the OECD. The reliance on social security contributions results in a tax system which is considerably less progressive than other systems where income tax plays a larger role. The French welfare state offers a minimum income, a fairly generous system of family benefits (cash transfers and tax deductions) and an earnings related unemployment benefit. Similar to Italy, social expenditure on old age pensions dominates and has increased dramatically in recent years. Sweden is by far the smallest country of the four with a population of around 10 million compared to about 60 million in the other three. Sweden has traditionally been characterised as belonging to the 'Social Democratic' or 'Nordic' model of welfare with a large public sector and a large and active welfare state. However, since the early 1990s financial crisis Sweden has undertaken a series of reforms seeking to reduce the size of the welfare state. Changes in the tax system have made it less progressive and the generosity of unemployment insurance has been reduced. The United Kingdom is said to belong to a 'liberal' model of welfare regime types, characterised by a low tax and less generous welfare state. The UK has the second highest employment rates (behind Sweden) both overall and for women but by far the highest rate of women working part-time and the highest incidence of low-wage employment. The UK has an established system of in-work benefits, made more generous with the introduction of tax credits in 1999 and through cash transfers to assist with housing costs.

4. Data

The data used in this research are drawn from the Luxembourg Income Study (LIS) micro datasets. LIS is a database of national data sources including household surveys and extracts from administrative systems (register data). To assist cross country analysis, LIS have harmonised key variables although, inevitably, differences remain both between countries and within countries over time. Here we provide some information on the national data sources used and highlight factors that could affect our analysis.

UK data are from the Family Expenditure Survey until 1994 and from 1995 onwards from the Family Resources Survey, both are annual household surveys. For France information is drawn from the Household Budget Survey (BdF). This survey collects information on net income but because income tax in France is not withheld at source but paid by annual tax return, all the amounts reported in the survey are net of mandatory contributions but gross of income tax. LIS uses an estimate of income tax based on income tax paid in the previous fiscal year to compute net household income.

Italian data are drawn from the Survey of Household Income and Wealth (SHIW). Incomes are reported net of taxes and social contributions. Data on net personal income taxes and social security contributions have been imputed by the Bank of Italy (the data providers). This has implications for some of the analysis reported in this paper and is highlighted where relevant.

Sweden is the only country in our sample for which income data is drawn from administrative data sources. Households in the Swedish dataset (HINK) were defined in terms of fiscal units up to 2000. The result is that children over the age of 16 still living with their parents were not included as household members but could appear in the survey as a separate household unit. In addition, non-married couples who don't have children in common are counted as separate household units. The result is a larger number of households classified as single household

units. This potentially has an impact on poverty and inequality measures as for some pooling of household resources and needs are not accounted for and children (16 years and older) who are still living with their parents are likely to appear to live in households with very little, if any, income. However, Fritzell et al. (2014) show that inequality measures using the old and new definitions are very similar and therefore this is unlikely to lead to any great discontinuity.

Table 1: Survey years available from the LIS database used in the analysis

	1970s	1980s	1990s	2000s
UK	1974, 1979	1986	1991, 1994, 1995, 1999	2004, 2007, 2010
Italy		1986, 1987, 1989	1991, 1993, 1995, 1998	2000, 2004, 2008, 2010
France		1984, 1989	1994	2000, 2005, 2010
Sweden	1975	1981, 1987	1992, 1995	2000, 2005

5. Trends in income poverty, inequality and the concentration of cash transfers

We begin by examining within country trends in poverty rates (measured before and after net cash transfers) and the concentration of gross and net cash transfers. The examination of gross and net cash transfers allows us to assess changes in the progressivity of cash transfers and direct taxes[1] separately as here we define household net cash transfers as gross cash transfers net of all direct taxes. Ultimately it is the combined effect of cash transfers and direct taxes that determine the redistributive effectiveness of the system.

In the UK we observe a reduction in the concentration of *net* cash transfers which has been driven by a reduction in tax progressivity (Figure 1). Gross cash transfers became less concentrated between 1974 and 1979 but then increased in concentration between 1986 and 1991 and between 1995 and 2010, reflecting an increasing policy emphasis on focusing resources on those most in need and latterly with efforts to reduce the incidence of child poverty. The gap between the concentration of gross and net cash transfers widened between 1974 and 1979 and then narrowed reflecting a fall in the progressive incidence of direct taxes. Poverty rates increased in the UK with much greater increases for market income than for disposable income measures demonstrating the effectiveness of net cash transfers in keeping poverty rates down. The fact that disposable income poverty rates did increase, particularly over the period 1974-1991, shows that net cash transfers were not enough to fully offset the increase in the incidence of market income poverty.

[1] Ideally measures of indirect taxes would also be included but this information is not available in the data source.

In France a shorter time series is available (1984-2010). In the computation of the concentration coefficients household income is ranked on the basis of gross market income *net* of mandatory social contributions. To the extent that these are progressive, concentration coefficients will be lower than if household income was ranked on the basis of gross market income. The concentration of cash transfers follows no distinct trend over this period and there is very little difference between the concentration of gross and net cash transfers. This is because income in the French survey is reported gross of taxes but net of social contributions and the fact that France has the highest share of tax revenue collected through social security contributions across the OECD (40%) (OECDstat). This finding is also consistent with recent evidence which concludes that the French tax system is not progressive (Frémeaux and Piketty, 2014). Market income (net of compulsory social contributions) poverty rates increased marginally (there was also little change in UK rates over this time period) but disposable income poverty rates fell (particularly over the period 1989-1994) demonstrating an increase in the effectiveness of the French net cash transfer system (effectively gross cash transfers) in terms of reducing the incidence of poverty.

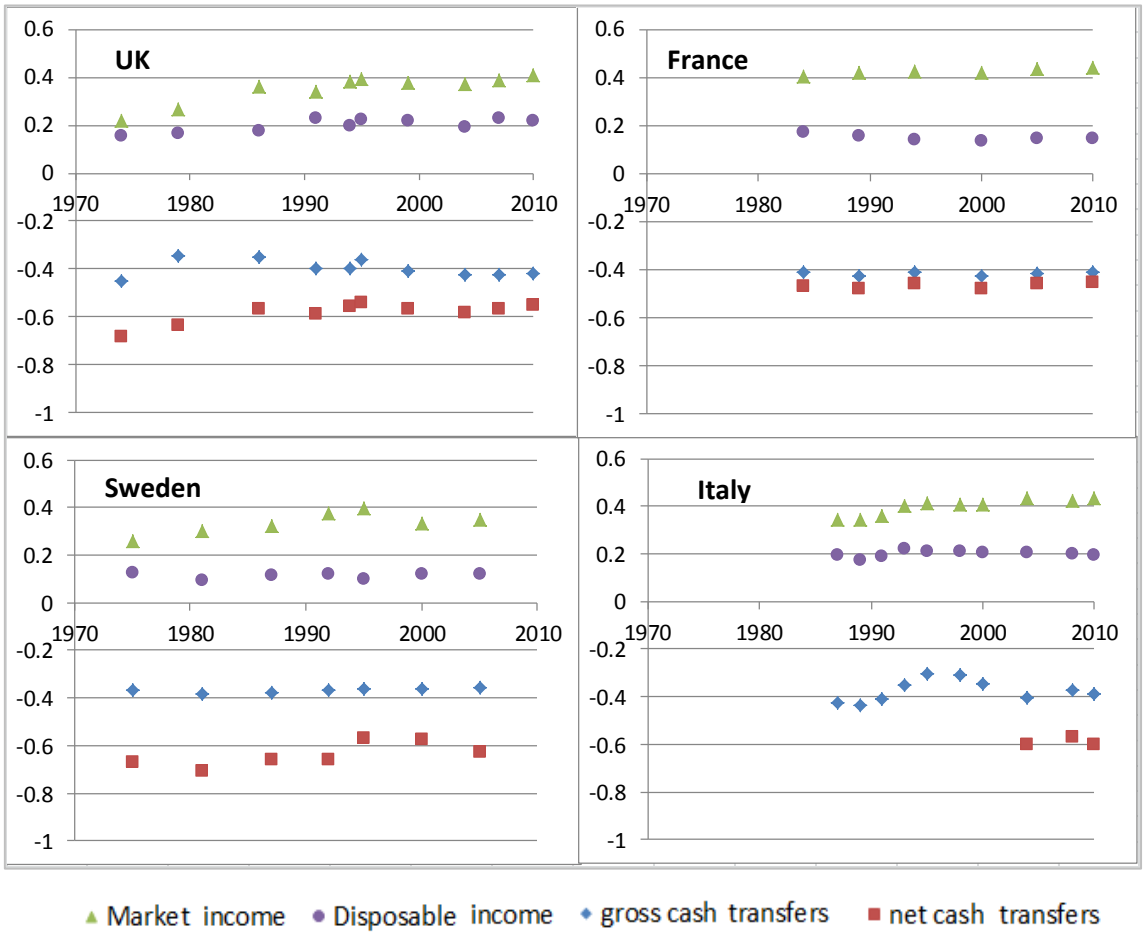
In Sweden the concentration of net cash transfers increased between 1975 and 1981 but the concentration of gross cash transfers changed very little indicating an increase in the progressivity of income tax (Figure 1). Subsequently, the concentration of net cash transfers fell quite dramatically between 1981 and 1995; in particular between 1981 and 1987 and again steeply between 1992 and 1995 (over the Swedish financial crisis in the early 1990s) with little change in the concentration of gross cash transfers over this period. This implies that income tax became less progressive and this is consistent with the reforms made over this period (Fritzell et al., 2014). Between 2000 and 2005 the concentration of net cash transfers increased once again. Market income poverty rates increased fairly dramatically in Sweden between 1975 and 1995 but disposable income poverty rates actually declined slightly as a result of net cash transfers more than offsetting the increase in market income poverty rates. Between 1995 and 2000 market income poverty rates fell while disposable income poverty rates increased and this narrowing between the two rates indicates that the net cash transfer system became less effective at combating poverty; no change in the concentration of gross or net cash transfers over this period points to a less generous system.

As income for Italy in the LIS database is reported *net* of taxes and social contributions, individual household income is ranked according to net rather than gross market income for the computation of concentration coefficients. Because income tax is progressive this means that cash transfers will be less concentrated in net market income terms than for gross market income. In Italy the concentration of gross cash transfers decreased between 1989 and 1995 followed by an increase between 1998 and 2004; the concentration of gross cash transfers in 2004 was very similar to 1989. Information on imputed taxes and social contributions is only made available through LIS from 2004 in the Italian data series and therefore it is not possible to analyse differences in the trends between gross and net. In Italy as income is reported net of taxes and social contributions, net market income is shown in Figure 1 and therefore the difference between net market income and disposable income is accounted for by the impact of cash transfers only. Market income and disposable income poverty rates increased between 1989 and 1993. Over the whole period for which data is available for Italy (1987-2010) there is an increase in the gap between (net) market income and disposable income poverty rates indicating that cash transfers became more effective at reducing the incidence of income poverty.

Comparing the four countries we find that from around 1990 all countries have very similar market income poverty rates at around 40%, although lower in Sweden from around 2000 at

about 34% (Figure 1). The gap between market income poverty rates and disposable income poverty rates is highest in France (although note that market income is reported net of mandatory social contributions) where net cash transfers reduced poverty rates by around 30 percentage points in 2005. The concentration of net cash transfers decreased in the UK and Sweden, although the concentration increased in Sweden in the most recent years 2000-2005.

Figure 1: Trends in poverty rates (vertical axis – positive scale) and concentration of cash transfers (vertical axis – negative scale) (all age)



Notes: (1) For Italy, market income is reported net of taxes and social contributions. This means that the difference between market and disposable income represents the effect of cash transfers only. From 2004 imputed income tax and social security contributions are reported allowing for an estimate of net and gross cash transfers to be included. For the computation of concentration coefficients, income is ranked on the basis of net rather than gross market income. (2) For France, the measure for market income is net of compulsory mandatory social contributions. Income tax for the previous fiscal year is used to estimate disposable income.

Source: Author's calculations based on data from the Luxembourg Income Study

The series in Figure 2 are restricted to the working age population (16-64 years) and therefore largely exclude the effects of cash transfers in the form of pensions. Using market income as counterfactual income is arguably the least realistic for those reliant on pensions. The concentration of gross cash transfers is similar to that shown for the all age population but

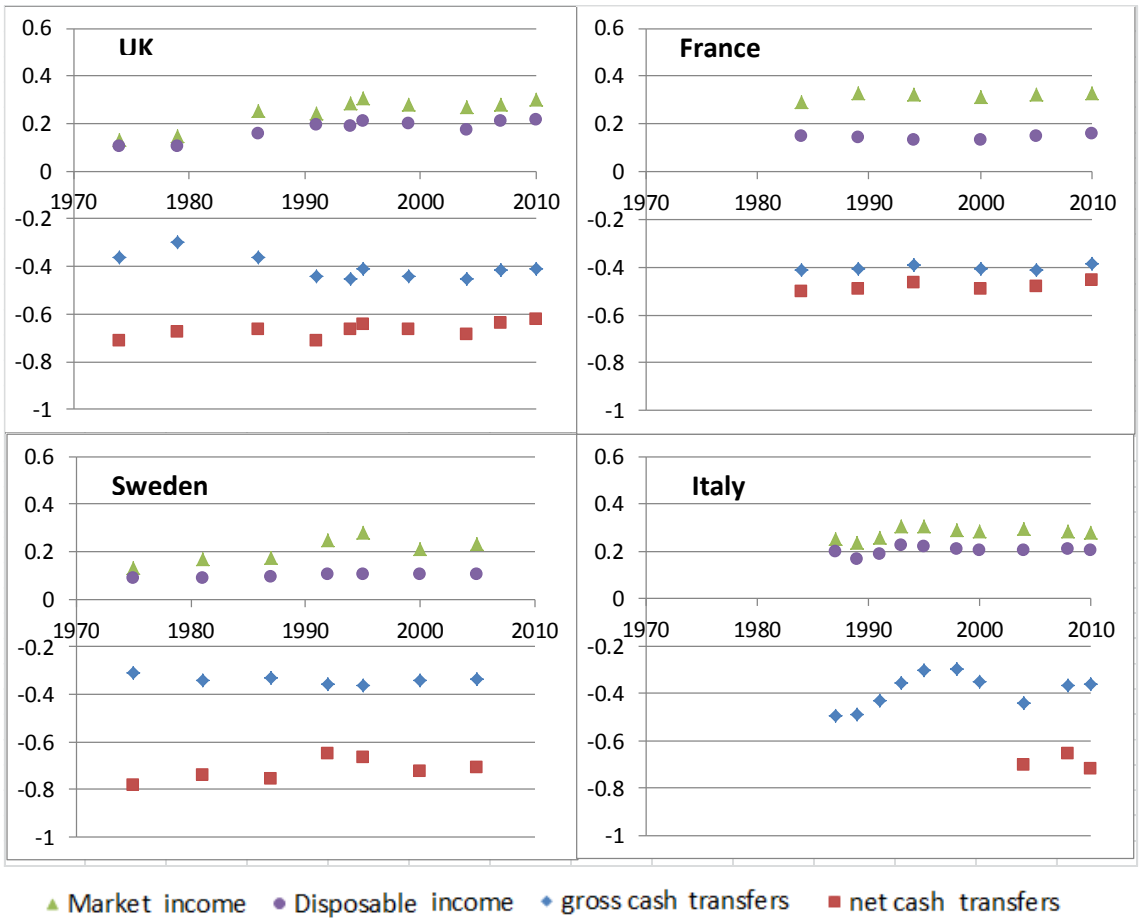
higher for net cash transfers among the working age population. This is because income tax among the working age population is more progressive, reflecting the higher tax liabilities of the working age population, demonstrated by the larger gap between the concentration of gross and net cash transfers in the working age population than in the all age population. Market income poverty rates are lower among the working age population highlighting the point made about the importance of pensions in the population over working age. The gaps between market income poverty rates and disposable income poverty rates are much smaller in the working age population as net cash transfers play a smaller role in poverty reduction in the working age population (again reflecting the importance of pensions). It is notable that the gap between market income and disposable income poverty rates is particularly small in Italy; no doubt a result of the fact that the Italian welfare state has much more limited provision of cash transfers for the working age population and the domination of pensions for those over working age. The overall pattern of trends in concentration and poverty rates between the all age and the working age populations is very similar across these four countries.

It is well-documented that income inequality in the UK increased over the 40 years since 1970, with much of the increase occurring over the 1980s (McKnight and Tsang, 2014). While inequality increased in market income and disposable income, the increase was greater for market income (48% versus 33% increase; 18 Gini points versus 9 Gini points) (Figure 3). This suggests that the net cash transfer system became more effective in terms of reducing income inequality. This could be due to changes in factors affecting market income inequality such as unemployment and earnings inequality as well as increases in disability and the growth in disability-related benefits and housing benefits. In Sweden inequality of market income increased in the first half of the 1990s; a period over which the concentration of net cash transfers fell[2]. However inequality in disposable income didn't increase until the second half of the 1990s when inequality in market income actually fell.

In France the inequality of disposable income and market income fell between 1984 and 1989 but thereafter remained fairly stable through to 2010. Inequality in market and disposable income dipped temporarily in Italy between 1986 and 1991 and inequality in market income continued to increase gradually through to 2004, although inequality in disposable income remained fairly flat.

[2] These inequality rates are lower than those reported in some other studies but the trends are the same (Fritzell et al., 2014).

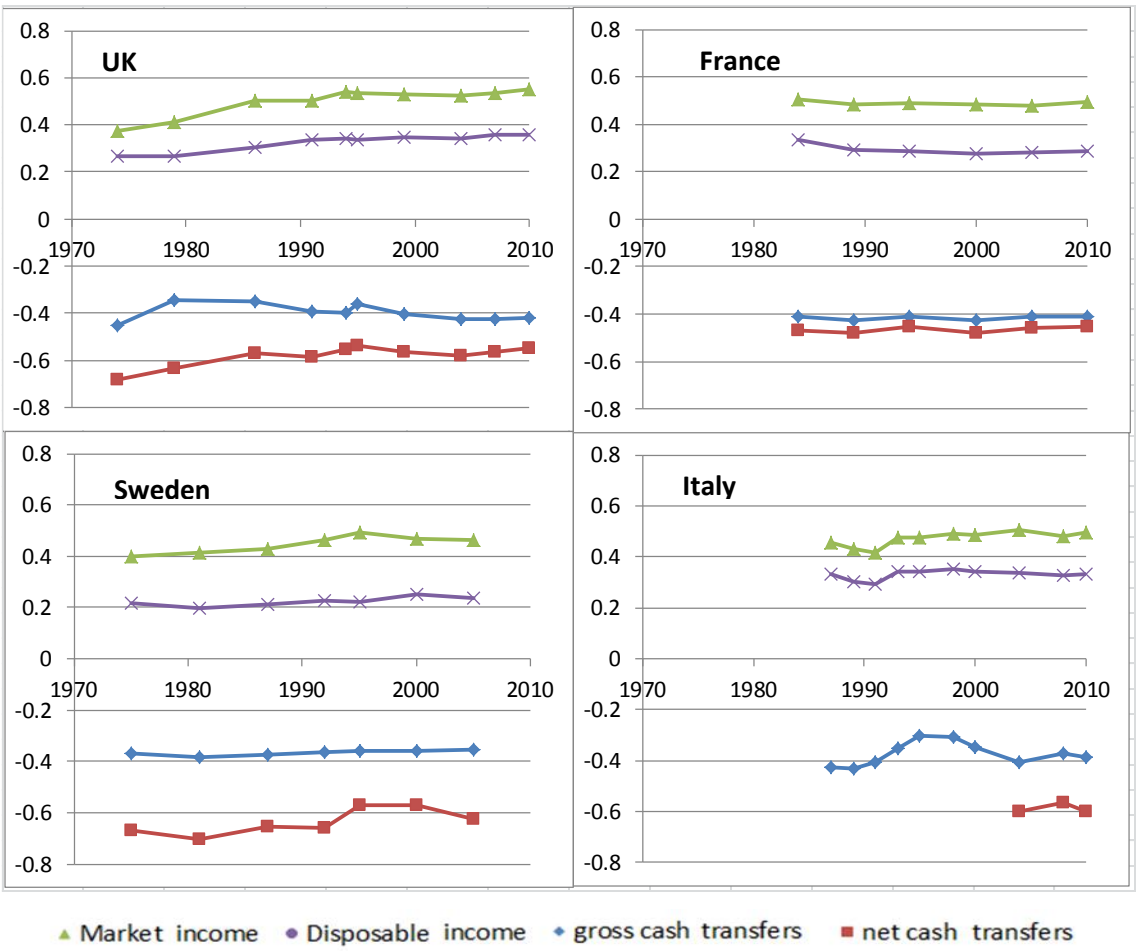
Figure 2: Trends in poverty rates (vertical axis – positive scale) and concentration of cash transfers (vertical axis – negative scale) (working age)



Source: Author's calculations based on data from the Luxembourg Income Study

Notes (see Figure 1 notes)

Figure 3: Trends in inequality in market and disposable income (Gini coefficients) (vertical axis – positive scale) and concentration of gross and net cash transfers (vertical axis – negative scale) (all age population)

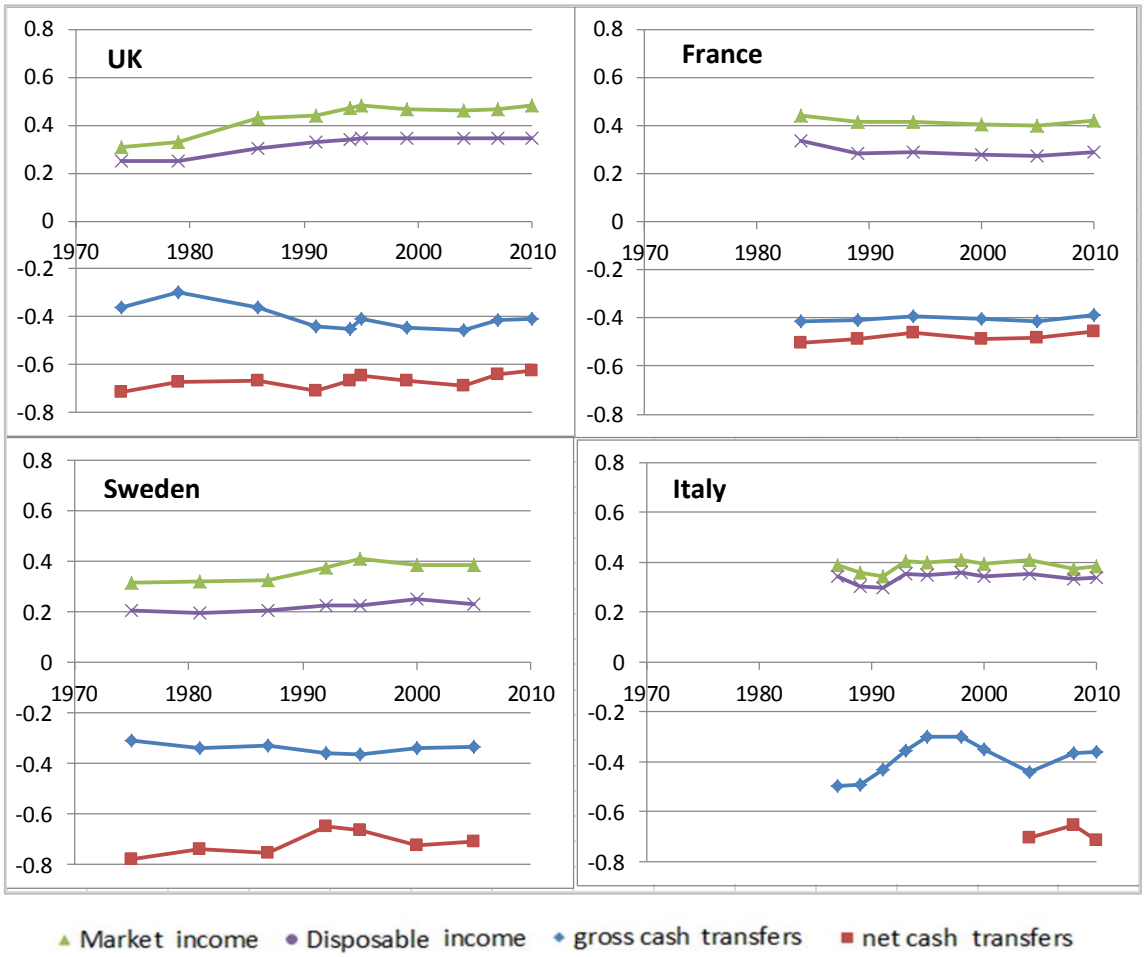


Source: Author's calculations based on data from the Luxembourg Income Study

Notes (see Figure 1 notes)

Inequality in market income is lower in the working age population than the all age population and the difference between market income inequality and inequality in disposable incomes is much reduced as net cash transfers play a smaller redistributive role in the working age population (Figure 4).

Figure 4: Trends in inequality in market and disposable income (Gini coefficients) (vertical axis – positive scale)and concentration of gross and net cash transfers (vertical axis – negative scale) (working age)



Notes (see Figure 1 notes)

Source: Author's calculations based on data from the Luxembourg Income Study

6. Concentration of gross universal transfers and gross social assistance

For the main analysis we examine the concentration of *total* gross or net cash transfers as it is the combination of universal and social assistance that has the overall redistributive effect that we are interested in measuring. However, it is interesting to examine how the concentration of the different types of cash transfers has evolved within countries. Cash transfers are commonly categorised into universal benefits and social assistance. Social assistance is generally means-tested and therefore targeted at low income families. However, targeting of universal benefits to certain groups which tend to have the lowest incomes (pensioners, families with young children, etc) can create an indirect or secondary form of income targeting at least in terms of the average for the group (some refer to this as 'targeting within universalism' or 'categorical selectivity'). In this section we examine how the targeting of gross cash transfers classified according to whether they are universal benefits or social assistance has changed over time within the four countries measured by concentration coefficients (Table 2).

Social assistance is more concentrated although there are some exceptions where 'universal' transfers are more concentrated than social assistance (eg France 1984 and 1989) but it is likely to have arisen as a result of deficiencies in the data with information not always available for sub-components[3] within transfer types. Changes in eligibility, the introduction of new cash transfers, welfare benefit reforms and changes in need (eg unemployment) are all likely to affect trends in the differences between the two types of cash transfer. For example the introduction of tax credits for low income working households in the UK resulted in cash transfers having greater reach up the income distribution than previous in-work benefits. This has had the effect of decreasing the concentration of social assistance.

Among the all age population we observe fluctuations in the concentration of universal cash transfers over time. For the complete periods for which information is available we observe an increase in concentration in the UK but falls in France, Italy and Sweden. The concentration of universal cash transfers also fell among the working age population in France and Italy but increased in the UK and Sweden.

A more mixed picture emerges with regards to changes in the concentration of social assistance. For the all age population concentration increased in Sweden, France and initially the UK (falling after the introduction of tax credits in 1999). In Italy the concentration of social assistance fluctuates over time[4].

This pattern within countries and across time is largely replicated for the working age population with a few exceptions. In Italy the concentration of social assistance fell overall in the working age population but large fluctuations over time suggests that there are some data quality issues.

In the UK, France and Sweden the concentration of universal benefits is greater among the all age population than the working age population while the reverse is true for social assistance. In Italy there is a more mixed picture which changes over time.

[3] This is not a problem for the total values used in the main analysis.

[4] It is not clear if this is due to data coverage or policy. Italy lacks a national level social assistance programme and provision varies across regions.

Table 2: Concentration coefficients by type of cash transfer

	All ages		Working age	
	Gross universal	Gross social assistance	Gross universal	Gross social assistance
UK				
1979	-0.325	-0.454	-0.236	-0.513
1986	-0.283	-0.561	-0.231	-0.621
1991	-0.316	-0.696	-0.272	-0.762
1994	-0.317	-0.647	-0.291	-0.715
1995	-0.270	-0.664	-0.236	-0.714
1999	-0.327	-0.656	-0.281	-0.722
2004	-0.370	-0.573	-0.300	-0.656
2007	-0.414	-0.478	-0.312	-0.597
2010	-0.414	-0.438	-0.309	-0.560
France				
1984	-0.429	-0.209	-0.432	-0.306
1989	-0.437	-0.300	-0.402	-0.431
1994	-0.408	-0.417	-0.366	-0.564
2000	-0.426	-0.446	-0.366	-0.580
2005	-0.407	-0.478	-0.374	-0.606
2010	-0.401	-0.485	-0.342	-0.623
Italy				
1987	-0.424	-0.466	-0.490	-0.585
1989	-0.432	-0.472	-0.489	-0.537
1991	-0.405	-0.462	-0.427	-0.532
1993	-0.344	-0.454	-0.346	-0.485
1995	-0.301	-0.330	-0.306	-0.121
1998	-0.309	-0.349	-0.301	-0.117
2000	-0.342	-0.496	-0.352	-0.227
2004	-0.399	-0.530	-0.436	-0.575
2008	-0.363	-0.529	-0.366	-0.363
2010	-0.383	-0.488	-0.363	-0.358
Sweden				
1975	-0.371	-0.353	-0.265	-0.459
1981	-0.381	-0.390	-0.284	-0.525
1987	-0.374	-0.390	-0.296	-0.542
1992	-0.353	-0.505	-0.319	-0.619
1995	-0.343	-0.539	-0.322	-0.631
2000	-0.342	-0.666	-0.306	-0.764
2005	-0.339	-0.706	-0.307	-0.805

Notes (see Figure 1 notes). 1974 for the UK is not included due to missing components.

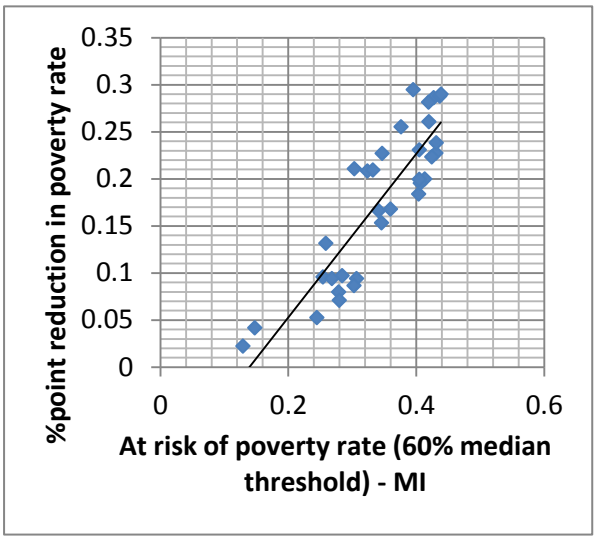
Source: Author's calculations based on data from the Luxembourg Income Study

7. Assessing the effectiveness of cash transfers on poverty and inequality reduction

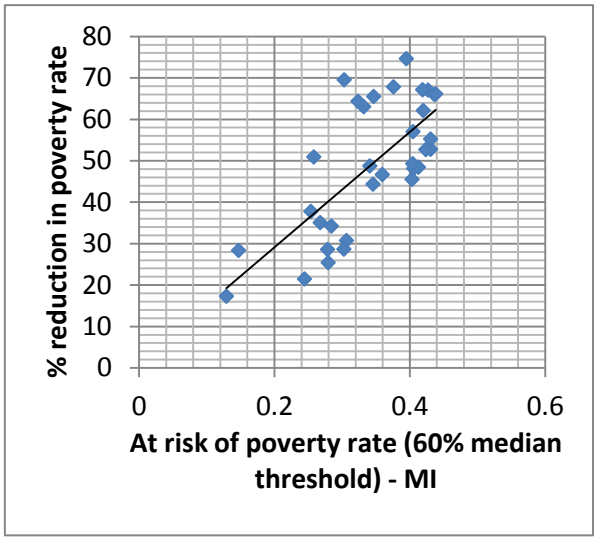
In assessing the relationship between the concentration of net cash transfers and poverty rate reduction we could either examine the relationship between concentration and the percentage point change in poverty rates or the percentage change in poverty rates between market income and disposable income. Both of these measures are positively correlated with the initial at risk of poverty rate as there is greater scope for a reduction in poverty when rates are higher. The percentage reduction in poverty rates has the unattractive feature of giving equal weight to, for example, a halving of poverty rates from 10% to 5% or from 50% to 25% while the percentage point reduction would give much greater weight to the 25 percentage point reduction from 50% to 25% than the 5 percentage point reduction from 10% to 5%. Figure 5 shows how the percentage point reduction and the percentage reduction are correlated with the initial at risk of poverty rates using all of the observations we have across all four countries.

Figure 5: Higher rates of poverty are associated with greater reductions in poverty

(a) Percentage point reduction



(b) Percent reduction



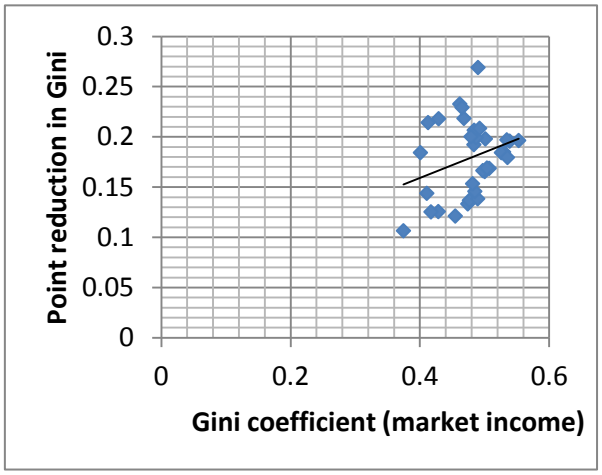
Notes (see Figure 1 notes).

Source: Author's calculations based on data from the Luxembourg Income Study

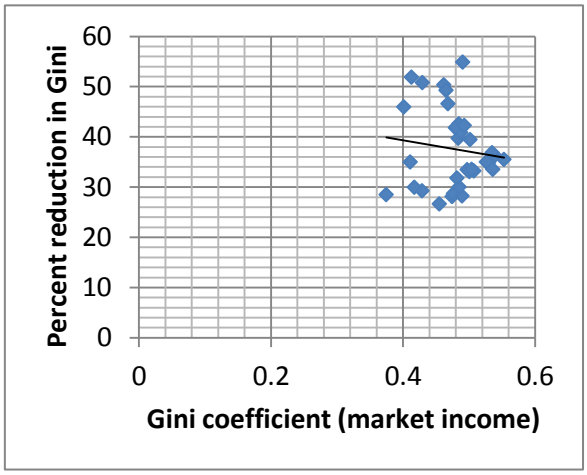
For inequality we can use either the point reduction or the percentage reduction in the Gini coefficient between market income and disposable income. Figure 6(a) shows that a positive correlation exists between the initial level of inequality and the observed point reduction in the Gini coefficient. However, Figure 6(b) shows the opposite relationship between the initial, or counterfactual, level of inequality (in market income) and the percent reduction associated with net cash transfers.

Figure 6: Higher rates of inequality are related to greater point reductions in inequality but relationship doesn't hold for percent reduction in inequality

(a) Point reduction



(b) Percent reduction



Notes (see Figure 1 notes).

Source: Author's calculations based on data from the Luxembourg Income Study

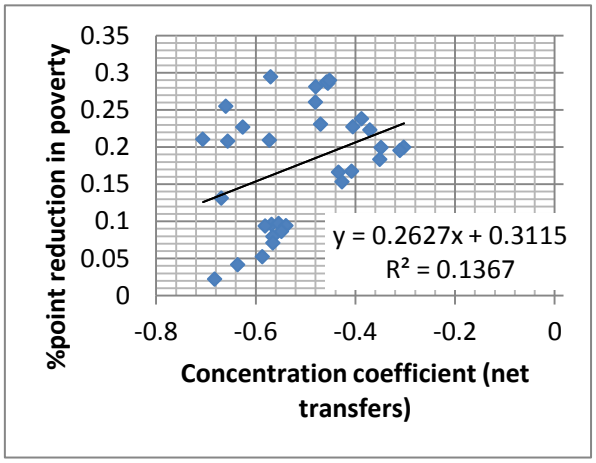
In the analysis we choose to focus on the percentage point reduction in the poverty rate and the point reduction in the Gini coefficient as we prefer the measure that gives greater weight to a reduction 50% to 25% than 10% to 5%.

7.1 Poverty reduction

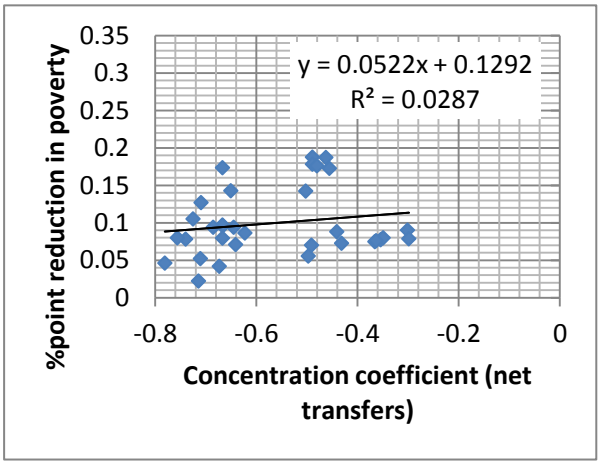
If we treat each of our data points across the four countries as independent observations and plot the bivariate relationship between concentration and poverty reduction we obtain our first estimate of the relationship between the degree of concentration of net cash transfers and their effectiveness. In the all age population (Figure 7(a)) we find a negative relationship. This supports Korpi and Palme's finding that greater concentration of net cash transfers is less effective at reducing poverty. However, although some of the data points fit closely to the best-fit line there is also considerable variation so that, for example a 20 percentage point reduction in poverty rates can be achieved where the concentration coefficient ranges from -0.7 to -0.3. Similarly restricting the analysis to the working age population (Figure 7(b)) also reveals a negative relationship between concentration and poverty reduction but there is considerable variation around the best-fit line.

Figure 7: Relationship between concentration of net cash transfers and reduction in at risk of poverty rates (percentage point reduction)

(a) All age households



(b) Working age households



Notes (see Figure 1 notes).

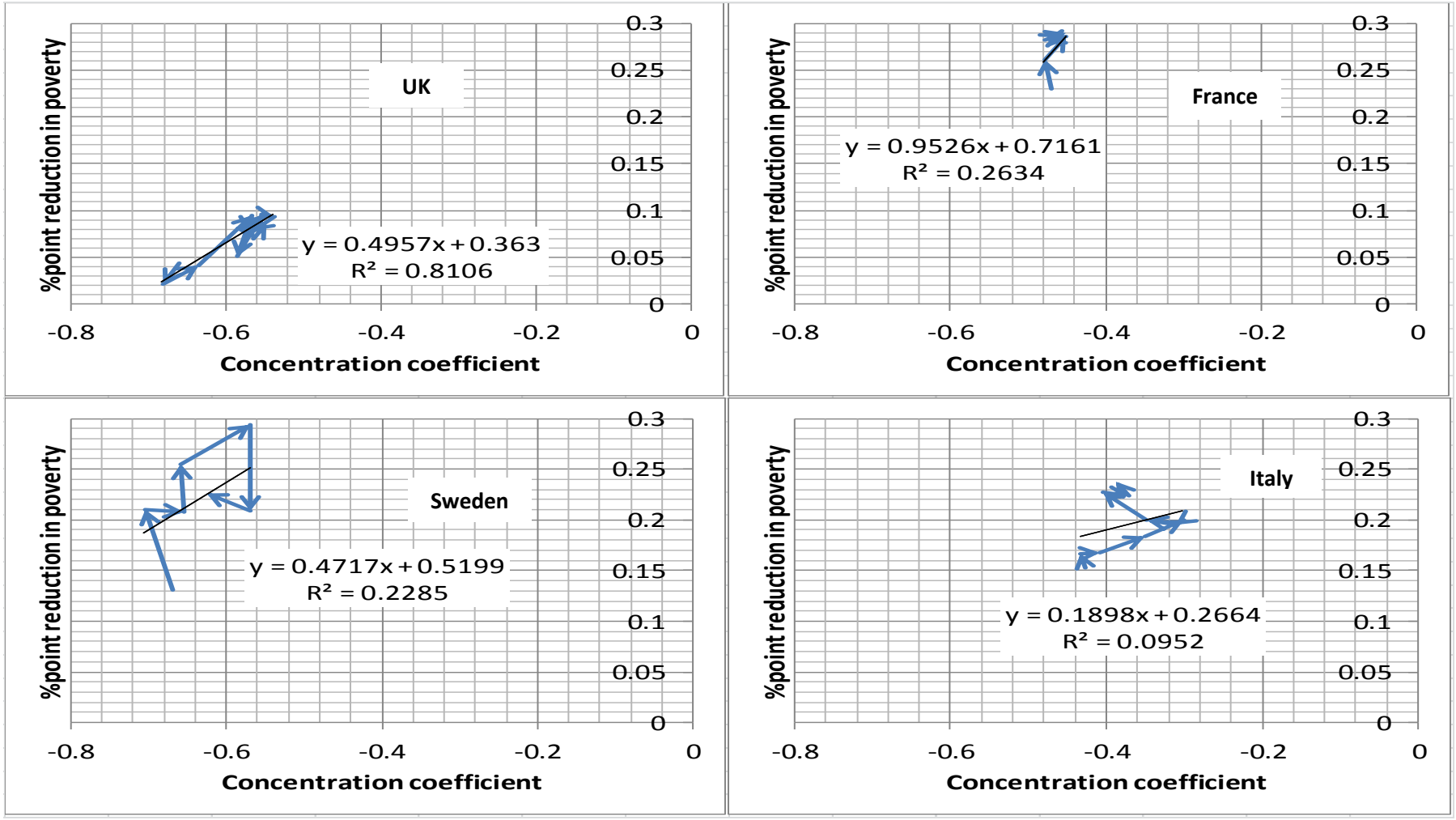
Source: Author's calculations based on data from the Luxembourg Income Study

If we take a different approach and examine the series within each country a dramatically clearer picture emerges (Figure 8). The within country analysis reveals a negative relationship between concentration and poverty reduction and although the size of the elasticities varies between the countries, it is much more convincing evidence. All of the coefficient estimates are positive in simple regressions. The relationship is highest in France (coefficient estimate) and weakest in Italy (both in terms of coefficient estimate and R^2). Although in France there is very little variation in the concentration of cash transfers which, as noted earlier, are net of mandatory social contributions but not of income taxes. The points sit closest to the best fit line in the UK ($R^2 = 0.81$).

The arrows joining the data points point in the direction of time. Movement up and down the best fit line rather than simply moving in a single direction along a line provides more convincing evidence of a relationship between these two variables.

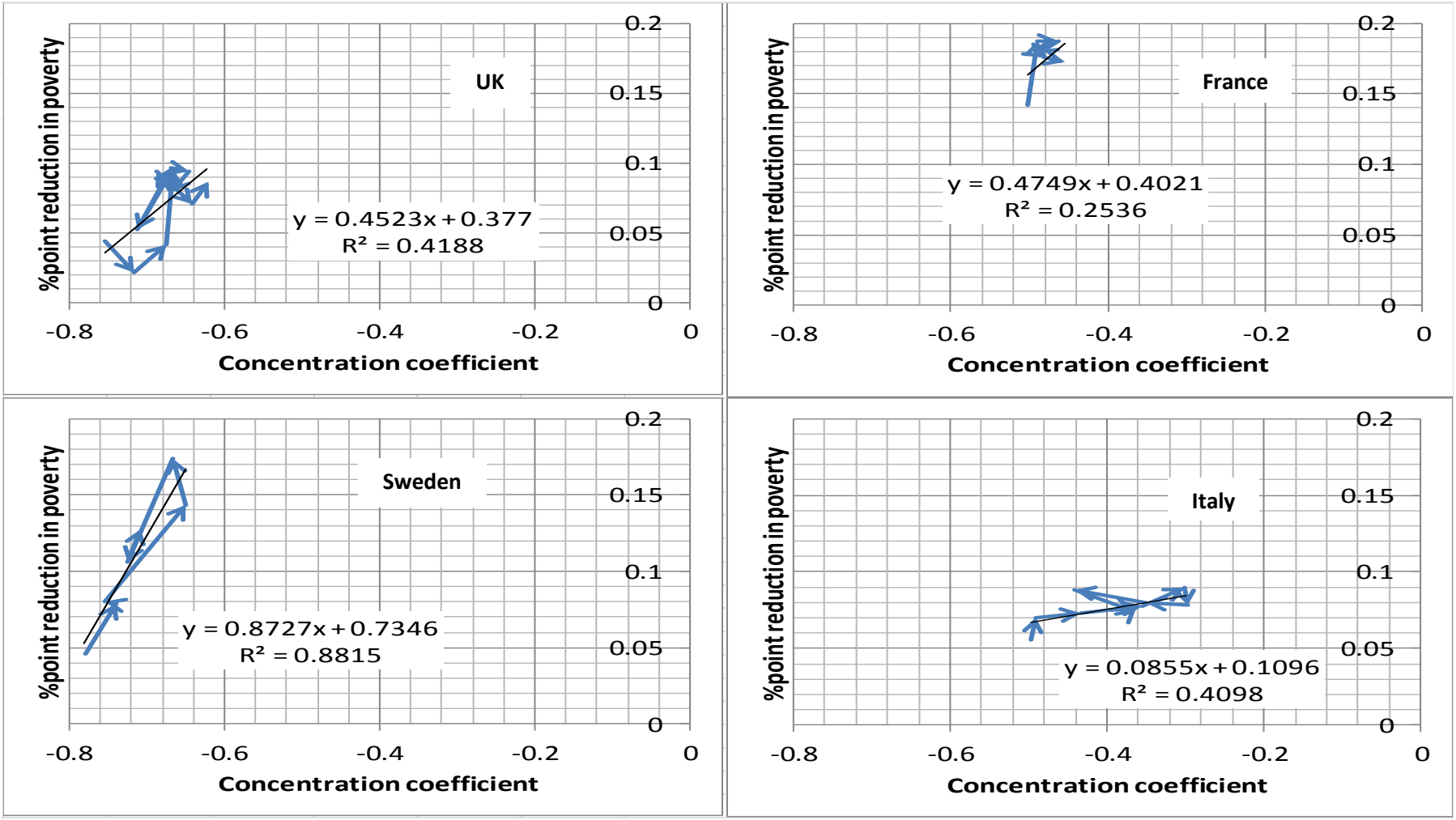
The analysis for the working age population also shows a negative relationship within countries between the concentration of net cash transfers and poverty reduction – greater concentration is associated with lower poverty reduction (Figure 9). Compared to the all age population this relationship is weaker in the UK but the points sit closer to the best fit line in Italy and Sweden than for the all age population.

Figure 8: Relationship between concentration of net cash transfers and poverty reduction within countries (all age population)



Source: Author's calculations based on data from the Luxembourg Income Study
Notes (see Figure 1 notes)

Figure 9: Relationship between concentration of net cash transfers and poverty reduction within countries (working age)



Source: Author's calculations based on data from the Luxembourg Income Study
Notes (see Figure 1 notes)

7.2. Inequality reduction

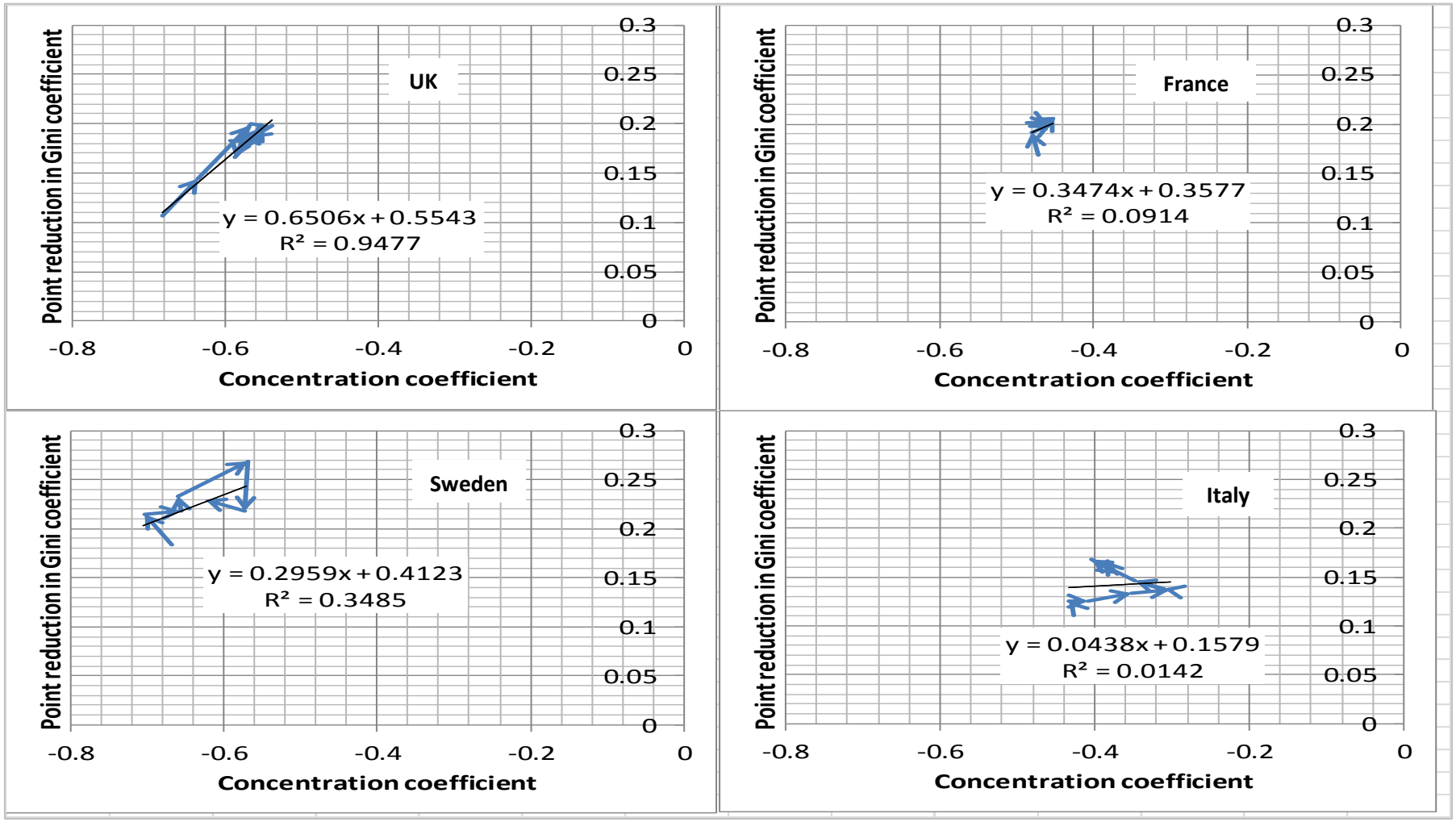
In this section we turn our attention to assessing the relationship between the concentration of net cash transfers and the reduction in income inequality measured by the difference (reduction) in Gini coefficients between market income and disposable income.

Looking within countries we find a negative relationship between the degree of concentration of net cash transfers and the reduction in inequality in the all age population (Figure 10). The relationship is strongest and most clearly defined for the UK, followed by Sweden. Again the arrows, which point in the direction of time, show that observations move up and down the line and not simply in one direction.

Note that for Italy the reduction in the Gini coefficient is the difference between inequality of net market income and disposable income and therefore shows the effect of gross cash transfers and misses the progressive effects of income tax and social contributions.

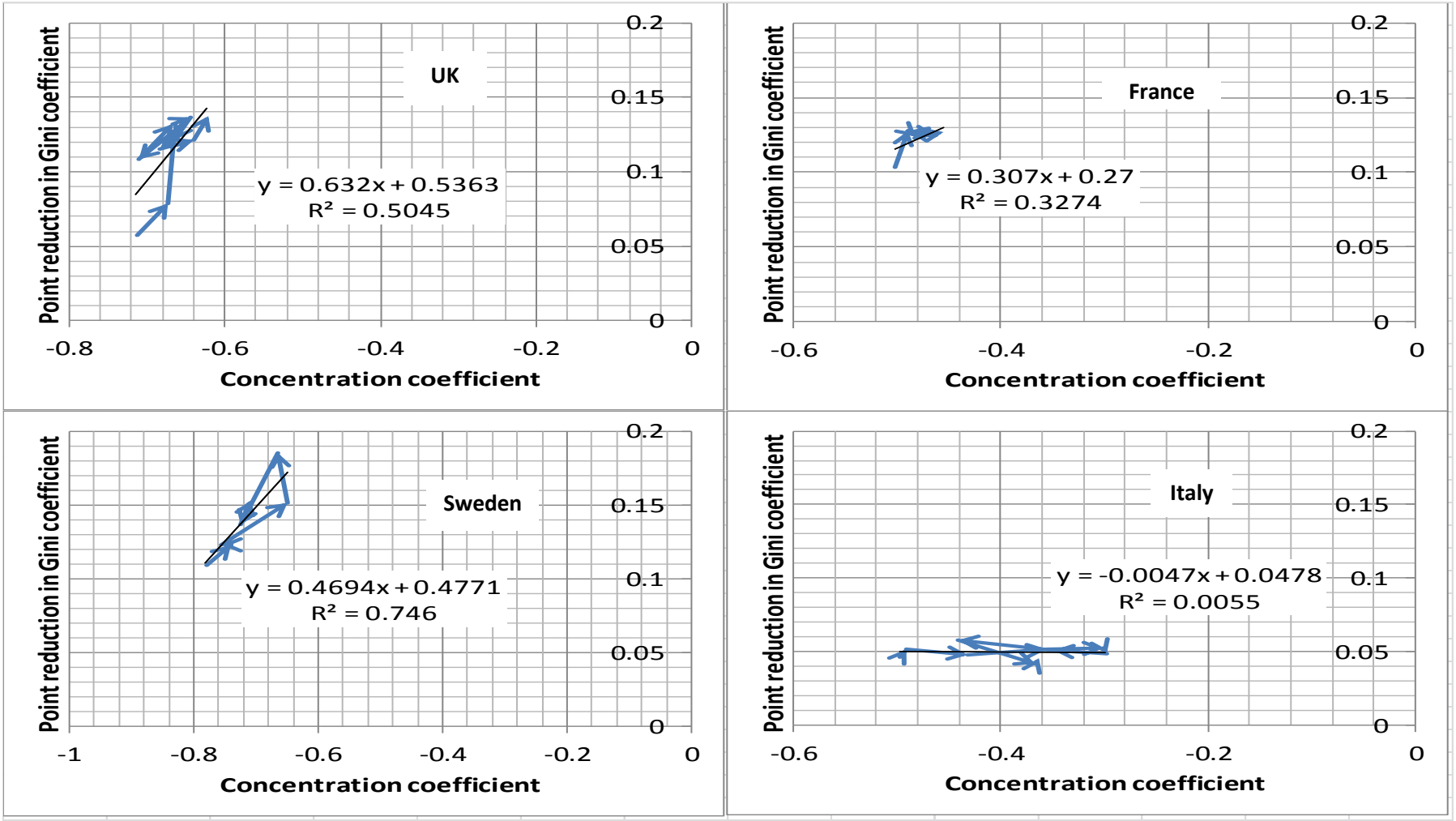
In the working age population we also find a negative relationship between the concentration of net cash transfers and the point reduction in the Gini coefficient in UK, Sweden and France (Figure 11). In these countries during times when net cash transfers have been more concentrated on low income households a lower reduction in income inequality has been achieved. This finding does not hold for Italy; most likely because progressive taxation is not taken into account due to lack of data.

Figure 10: Relationship between concentration of net cash transfers and point reduction in Gini coefficient within countries (all age population)



Source: Author's calculations based on data from the Luxembourg Income Study
Notes (see Figure 1 notes)

Figure 11: Relationship between concentration of net cash transfers and point reduction in Gini coefficient within countries (working age)



Source: Author's calculations based on data from the Luxembourg Income Study
Notes (see Figure 1 notes)

8. Summary

A number of recent studies have provided evidence which suggests that a net cash transfer system which targets cash transfers on low income households can be a more effective way to reduce inequality and income poverty than a system regarded as 'universal' in the sense that net cash transfers are more evenly received across the income distribution. This led to suggestions for a revision to the 'Paradox of Redistribution'; Korpi and Palme's 1998 finding that greater targeting of net cash transfers, measured in terms of concentration, is less effective at reducing poverty and inequality than 'universal' systems where cash transfers are received more evenly across the income distribution. Such a relationship provides an indication of how effective the welfare state is in assisting us at smoothing our own income over the lifecycle as much as redistribution between the wealthy and the disadvantaged at a point in time. Further research is required to assess how lifetime income inequality and income poverty reduction is associated with the concentration of cash transfers but this requires rich longitudinal data.

Previous studies have relied on estimating the bivariate relationship between concentration of cash transfers and poverty or inequality reduction at the country-level. Conclusions have been drawn on the basis of comparisons made between countries at a point in time, or at different points in time.

The research reported in this paper contributes further evidence to this debate by looking at the relationship between poverty and inequality reduction and the concentration of net cash transfers, within four countries (UK, Sweden, France and Italy) over a period of time that spans four decades.

The within country across time evidence presented does not support the case that greater targeting is more effective at reducing poverty or inequality. We offer a word of caution on the use of cross-country bivariate relationships to draw policy conclusions. Where data are available this type of analysis should at least be supplemented with analysis that looks within countries over time as a robustness check.

We find that within countries during periods when net cash transfers have been more closely targeted (concentrated) on lower income households the reduction of income inequality and the incidence of poverty is generally lower. A key to understanding this relationship is the progressivity of direct taxation and in the cases where we find weak(er) evidence it is often associated with incomplete information on income taxes and social contributions.

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ImPRovE: Poverty Reduction in Europe. Social Policy and Innovation

Poverty Reduction in Europe: Social Policy and Innovation (ImPRovE) is an international research project that brings together ten outstanding research institutes and a broad network of researchers in a concerted effort to study poverty, social policy and social innovation in Europe. The ImPRovE project aims to improve the basis for evidence-based policy making in Europe, both in the short and in the long term. In the short term, this is done by carrying out research that is directly relevant for policymakers. At the same time however, ImPRovE invests in improving the long-term capacity for evidence-based policy making by upgrading the available research infrastructure, by combining both applied and fundamental research, and by optimising the information flow of research results to relevant policy makers and the civil society at large.

The two central questions driving the ImPRovE project are:

> How can social cohesion be achieved in Europe?
>
> How can social innovation complement, reinforce and modify macro-level policies and vice versa?

The project runs from March 2012 till February 2016 and receives EU research support to the amount of Euro 2.7 million under the 7th Framework Programme. The output of ImPRovE will include over 55 research papers, about 16 policy briefs and at least 3 scientific books. The ImPRovE Consortium will organise two international conferences (Spring 2014 and Winter 2015). In addition, ImPRovE will develop a new database of local projects of social innovation in Europe, cross-national comparable reference budgets for 6 countries (Belgium, Finland, Greece, Hungary, Italy and Spain) and will strongly expand the available policy scenarios in the European microsimulation model EUROMOD.

More detailed information is available on the website http://improve-research.eu.

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