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COMPETITION LAW ENFORCEMENT AND HOUSEHOLD INEQUALITY IN THE UNITED KINGDOM

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ABSTRACT

Using a comprehensive database of all the decisions made under European and U.K. competition laws over the 15-year period to 2020, alongside households' consumption and market data, we estimate the level and distribution of the savings from enforcement across the United Kingdom. We find that competition law enforcement generated greater proportional savings for lower- and average-income households relative to the wealthiest households. Our estimations indicate average savings of 2.5 percent of the annual household budget for the lowest-income households, 2.1 percent for the average household, and 1.8 percent for the highest-income household. While proportionally greater savings for lower- and average-income households from competition law are observed in most years, in some years, higher-income households saved more. Our results bring to light the variables that affect the distribution of savings. Among them are the enforcement tool applied, the sectors in which enforcement action took place, and the enforcement body. We further illustrate how the public enforcement of competition law affects economic disparity and could potentially be used in a more structured, transparent, and systematic way to address societal concerns about increasing inequality.

JEL: D10, D31, D63, K21, L40, L41, L42

I. INTRODUCTION

Competition laws around the world reflect large degrees of consensus on the aims they seek to achieve. Among the common goals is a desire to promote and facilitate undistorted competition, enhance consumer welfare, and increase overall efficiency.¹ Importantly, for consumers, effective competition law enforcement promotes a competition dynamic that brings about lower prices, greater quality, choice, and services. But who are the consumers that mostly benefit from competition law enforcement? How much does competition law actually save consumers, and how are these savings distributed across households? These questions are at the heart of our inquiry.

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¹ Ezrachi (2017).

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While most competition laws focus on the aggregate benefits to consumers, and while most competition agencies use this aggregate effect as a guide (and disregard distributional matters), an understanding of the distributional effects of enforcement actions merits closer consideration.

The first justification for such inquiry is anchored in the practical daily implementation of the law. Despite competition law often being presented as neutral to matters of distribution (neither progressive nor regressive), many enforcement bodies do consider matters of distribution when prioritizing their enforcement actions. They exercise their discretion and direct resources in ways that are not completely blind to matters of distribution. Better understanding of distributional effects could enable these agencies to move beyond intuition when targeting their enforcement efforts. The second justification is policy driven. Competitive markets can potentially slow the decline of living standards and, at the same time, increase opportunities of those on the lowest incomes and promote social mobility which enlarges the size of the middle-income groups.² With this in mind, understanding how the gains from competition law enforcement are distributed across households has taken on an increasing urgency in some countries, given high and growing levels of inequality.³

In the United Kingdom, the data are striking. Despite its tremendous aggregate wealth,⁴ official statistics published right before the start of the Covid-19 pandemic estimated that some 14.5 million people—just under a quarter of the population—lived in relative poverty⁵ and that 8.5 million people (around 13 percent of the population) experienced persistent poverty.⁶ Growing inequality also affects those on average incomes—sometimes referred to as the working poor, or the “just about managing”—who are increasingly squeezed with little or no savings buffer to protect them from unexpected expenses.⁷ In 2019, around 19.6 million people (or 30 percent of the population) earned below the minimum income standard. For a four-person household, this meant earning <£399 per week.⁸ These trends have been exacerbated as a result of the Covid-19 pandemic,⁹ rising inflation, and the overall increase in the cost of living. By contrast, between 2016 and 2018, the top 10 percent of U.K. households had an average wealth of £1.5 million per adult in the household.¹⁰

While many factors have contributed to these inequality trends, it is nevertheless the case that competition law can both contribute to, and potentially mitigate, increasing household

² See *Ezrachi et al. (2022)*.

³ See, for example, *Khan and Vaheesan (2017)*.

⁴ In 2019, the combined net wealth of the United Kingdom was £10 trillion, equivalent to around £150,000 per person. See *Office of National Statistics (2020)*.

⁵ This is based on a relative measure of poverty and captures the number of people living in households with income (after housing costs) <60% of the median income in 2019/20.

⁶ Figures for 2019/20 taken from *House of Commons (2021)*. Other studies, again published before the pandemic, estimated that around 4.5 million people (around 7% of the population) were trapped in “deep poverty,” meaning that their income is >50% below the poverty line, while some 1.5 million people are “destitute,” meaning that they are simply unable to afford basic essentials. See *Social Metrics Commission (2020)*.

⁷ In 2018, some 10 million households had no savings at all, while another 3.2 million households (12%) had <£1,500 saved (*The Money Charity, 2018*). Collectively, this means that around 50% of households had <£1,500 in savings. Unsurprisingly, some 17% of U.K. adults were forced to use a credit card, overdraft, or borrowed money to pay for food or bills in that year (*Financial Capability Strategy, 2018*).

⁸ *House of Commons (2021)*. The Minimum Income Standard is defined as the minimum income required to meet an acceptable standard of living.

⁹ *Brewer and Gardiner (2020)* note that individuals in (pre-crisis) lower-income families were far more likely to have taken on new debt, or borrowed from friends or family, or cut back on saving during the pandemic and that, partly as a result of this the pandemic, will have had more marked negative effects on the living standards of lower-income working-age families than of higher-income families.

¹⁰ See *Advani et al. (2020)* who note that, “To put the scale of these gaps in context, the UK median net disposable household income was around £23,000 in 2018–19; it would require more than 400 years for the median household saving all disposable income to move from median wealth to reach the average wealth of the richest 1%.”

inequality. Take, for example, the way in which competition law enforcement can shield households from the exercise of market power, prevent their exposure to higher prices, and thus generate direct savings to household budgets. The same level of direct savings to the household budget will be proportionally greater for those on low or average incomes than those on higher incomes.¹¹ Additional savings generated from deterrent effects may further enhance the positive effects on households beyond the direct savings.¹² Further indirect benefits from sustaining a competitive culture add to these direct and deterrent benefits.

Against this background, this paper focuses on the household distributive impacts of the application of competition law in the United Kingdom. We investigate three questions. First, by using a comprehensive dataset of decisions, we estimate the savings (in terms of avoided price increases) that the public enforcement of EU and U.K. competition law have generated for U.K. households over the 15-year period between 2006 and 2020. Second, we examine how those savings have been distributed across consumers in the lowest, average and highest-income households. Third, we explore how the distribution of the savings generated by competition law enforcement differs by competition tool used, enforcement body, and sector investigated.

Our approach builds on the methodology and assumptions used by competition authorities to quantify the direct consumer impacts or “savings” of their decisions in aggregate.¹³ We extend this approach by estimating both the direct and combined savings (including the savings associated with deterrence); disaggregating the data based on actual household consumption patterns; and examining distributional impacts by enforcement tool, enforcement body and sector.

Overall, we find that competition law enforcement has generated greater proportional direct savings for the poorest households relative to the wealthiest households over the 15-year period examined. However, the relative household savings impacts differ depending on the type of competition law enforcement tool, which body is enforcing competition law, and the sectors that are the focus of an enforcement action.

The paper comprises nine additional sections. Section II provides a brief survey of existing research on competition law and household inequality. Section III describes our data on competition law enforcement and household expenditure, while Section IV sets out our assumptions and methodology. Section V presents our estimates of the savings to the average U.K. household from competition law enforcement, while Section VI shows how these savings were distributed among households. Sections VII–IX analyze the distribution of household savings by competition law tool, enforcement body, and expenditure sector. Section X concludes.

II. COMPETITION LAW AND HOUSEHOLD INEQUALITY

Despite the clear links between effective competition law enforcement, prices, and household budgets, the relationship is one which has, to date, only gained limited attention. Existing empirical studies have largely focused on the relationship between the relative intensity of competition (rather than competition law) and inequality (i.e. are more competitive markets associated with lower inequality). Many of these studies focus on macroeconomic trends examining changes in competition and inequality across, or within, countries over time. Influential studies include [Comanor and Smiley \(1975\)](#) who found that up to one-half of wealth holdings by the richest

¹¹ A £20 saving to a household with a budget of £15,000 is worth more to that household than it is to a household with an annual budget of £150,000.

¹² See [Competition and Markets Authority \(2017a\)](#).

¹³ See [Office of Fair Trading \(2008a, 2010a, b\)](#) and [European Commission \(2015\)](#). See also [OECD \(2005, 2016\)](#). For academic analyses on the general topic of quantifying competition law impacts see [Davies and Ormosi \(2012, 2013\)](#); [Davies \(2012\)](#); [Delgado et al. \(2016\)](#).

2.4 percent of American households at the time was entirely due to capitalized monopoly gains. [Ennis et al. \(2019\)](#) use data for eight OECD countries to examine the impact of competition on inequality. They find that market power reduced the income of the poorest 20 percent by ≥ 11 percent, while it increases the wealth of the richest 10 percent by between 12 and 21 percent under reasonable assumptions. Using data from 20 countries for the period 1975–2011, [Han & Pyun \(2021\)](#) find that increasing markups are positively associated with rising income inequality, with the highest top-income earners (top 1 percent) deriving a disproportionate benefit (even more than the lower top-income earners [top 5 percent or 10 percent]).

Alongside these studies, other research has estimated the relative household impacts of monopoly in different countries. [Creedy and Dixon \(1998\)](#) estimated the relative burden of monopoly for different household income levels for fourteen commodity groups (including food, beverages, and housing costs) in Australia and found that the welfare loss is 46 percent higher for the lowest decile compared with the highest (low-income households compared with high-income households). In a similar vein, [Urzúa \(2013\)](#) looks at the effects of the exercise of monopoly power for seven basic consumption goods in Mexico. The welfare loss associated with market power is estimated to be 19.8 percent higher for the poorest households relative to the richest households. [Hausman and Leibtag \(2007\)](#) use U.S. data to estimate the household benefits from increased competition. They find that low-income households experienced greater consumer welfare gains from increased competition than their higher-income counterparts. Of particular relevance is the finding that households with incomes $< \$10,000$ benefited from competition by around 50 percent more than the average-income households.

The two studies closest to our own inquiry are [Ganglmair et al. \(2021\)](#) and [Dierx et al. \(2017\)](#). Although they do not focus on competition law, [Ganglmair et al. \(2021\)](#) use actual consumption expenditure data and firm-level mark-up data for eighteen industries in Germany between 2002 and 2016 to estimate a series of “consumption-weighted price markups.” They derive two main results. First, they find that the consumption-weighted price markups are higher (sometimes up to 15–25 percentage points higher) and grow faster than conventional (revenue-weighted) price markups. Second, they find that consumption-weighted price markups are higher for medium-income households than for high-income households and opine that this might be a contributing factor to increasing inequality. While we also use actual consumption data in our study, we extend the focus to the way in which specific competition law decisions affected inequality, given the consumption patterns of households at different income levels.

We are only aware of one study which links actual competition law enforcement to household inequality: [Dierx et al. \(2017\)](#) investigate the macroeconomic and distributional impacts of competition policy using a sample of European Commission merger and cartel decisions in 2014. As with our analysis, the direct consumer savings are calculated by multiplying the foreseen reduction in prices (in comparison with the counterfactual of no competition policy intervention) and duration of such price reduction and the turnover in the market affected by the decision. Using a dynamic stochastic general equilibrium model, they then investigate the wider effects of EU competition policy interventions on distributional outcomes across households. The policy simulations presented include both direct market effects and an estimation of deterrent effects through a multiplier assessment. The study finds that liquidity-constrained (poorer) households increase their consumption proportionally more than nonliquidity-constrained households (four times more after 5 years), supporting the notion that competition law enforcement could have a distributional effect. Our analysis shares broad similarities to this work in using actual competition law decisions and adopting standard assumptions to estimate direct consumer savings and deterrent effects. However, our analysis differs insofar as we focus on competition law decisions taken in other areas (abuse of dominance and market investigations)

by different bodies (U.K. competition agencies, sectoral regulators, and DG competition) and over an extended time period of 15 years.

While we are not aware of any other empirical studies that have looked at the household distributional impacts of competition law, we note that the issue has received some attention from policy makers and competition authorities. A 2017 World Bank report, for example, looked at how competition policy affects wealth distribution, observing that lower-income households suffer relatively larger welfare losses from monopoly and imperfect competition in basic goods than do wealthier households.¹⁴ U.K. competition agencies in particular have long considered how competition law interacts with inequality. A 2010 report by the Office of Fair Trading examined the issue in a thematic way looking at how low-income consumers are treated in five markets (food, energy, financial services, transport, and internet access) and whether they suffer disadvantages vis-a-vis consumers on higher incomes.¹⁵ A 2015 report of the Competition and Markets Authority (CMA) examined the specific challenges affecting consumers on low incomes and considered how these challenges could be addressed through its competition, markets, and consumer law powers.¹⁶ While the report does not consider the distributional impacts of past decisions, it notes that its prioritization principles may allow it to prioritize projects where the direct effects would specifically benefit disadvantaged consumers, for example, those on low incomes. Most recently, the CMA has focused on distributional issues as part of its work on so-called “loyalty penalties,” noting that individuals with low income (income <60 percent of the median income) were more likely than other consumers to encounter issues related to loyalty penalties across markets.¹⁷ U.K. sectoral regulators—concurrently empowered to enforce competition law—have also looked at the distributional impacts of their decisions on different types of households.¹⁸

Our study contributes to this existing body of academic and policy research in several ways. First, we consider the impact that competition law (rather than competition *per se*) has had on household budgets. That is, our focus is specifically on the savings (in terms of avoided price increases) that actual competition law enforcement has generated for households at different income levels. Second, our analysis is based on a comprehensive database of all U.K. and EU competition law decisions over a period of 15 years which affected U.K. consumption. As such, we do not focus only on selected major decisions nor confine our analysis to one year. Third, our analysis is not restricted to one decision-making body or one competition law tool. We investigate the distributional impacts in the United Kingdom of all enforcement actions taken by all bodies that can enforce competition law. Our final contribution is to combine data on actual enforcement decisions, including market shares, with data on the actual household consumption expenditure since 2006.

III. DATABASE OF COMPETITION LAW DECISIONS AND HOUSEHOLD EXPENDITURE

We have compiled data on competition law enforcement in a comprehensive database of relevant decisions taken over the 15-year period from 2006 to 2020.¹⁹ Our database comprises three

¹⁴ World Bank (2017).

¹⁵ Office of Fair Trading (2010c).

¹⁶ Competition and Markets Authority (2015a).

¹⁷ Competition and Markets Authority (2018a).

¹⁸ Ofgem (2020).

¹⁹ This period was selected because 2005 was the first year that U.K. competition authorities started to quantify the consumer impacts of their decisions. However, because expenditure data were not available in the form required for 2005, we have started our analysis from 2006.

categories of decisions. The first category includes domestic competition decisions²⁰ taken by a U.K. Competition agency, such as the CMA and its predecessor bodies (the Office of Fair Trading and the Competition Commission). The second category of decisions are those taken by U.K. sectoral regulators with concurrent competition law powers (such as Ofgem, Ofcom, Ofwat, Office of Rail and Road, and the Civil Aviation Authority). The final set of decisions are those taken by the Directorate General of Competition of the European Commission (DG Competition) when it enforced EU competition law in a manner that affects U.K. markets.²¹

In building the database of relevant decisions, we examined each decision taken by a relevant authority over the 15-year period under applicable legislation. For U.K. domestic decisions, this process included all restrictive agreement and abuse of dominance decisions taken under the Competition Act 1998 as well as merger decisions and market investigation decisions taken under the Enterprise Act 2002. For EU decisions, we examined all decisions taken under the EU Merger Regulation and Articles 101 and 102 of the Treaty on the Functioning of the European Union which had a U.K. dimension (i.e. the United Kingdom was included in the relevant market, either nominally or as part of a wider geographic market, such as the EU or the EEA).

Decisions were included in the database if they satisfied specific criteria. Decisions on mergers and acquisitions were included when they resulted in prohibition, remedy, or when the investigation resulted in the parties withdrawing the transaction.²² Restrictive agreements and abuse of dominance decisions were included if there was a finding of an infringement or where commitments (in the form of a formal settlement) were offered. Market investigations were included where there was a finding of an adverse effect on competition. Decisions that were fully overturned on appeal were excluded from the database, while partially annulled decisions were included where an infringement was upheld for some parties or where a fine was reduced but an infringement was still upheld. Certain EU decisions were excluded where the U.K. impact was deemed minimal,²³ there was an informal settlement,²⁴ the matter involved a procedural issue, or the case was aborted.

As for the products in question, [Table 1](#) outlines the number of products we examined, broken down by type of decision and enforcing body.

Data on household expenditure were taken from the U.K. Office of National Statistics (ONS) publications on “Detailed household expenditure by gross income decile group” and “Living Costs and Food Survey” (LCF) for the period from 2006 to 2020.²⁵ We used Table 3.1E of the LCF survey, which provided a detailed breakdown of average weekly household expenditure by equivalized income decline groups. These data are based on an average sample of 5,000 households (comprising 500 households in each decile group) weighted by an average household size of 2.4 persons. Average household expenditure on different commodity or services is organized into Divisions (e.g. 7 Transport), Groups (7.2 Operation of personal transport), Classes (7.2.1 Spares and other accessories), and Sub-classes (7.2.1.1.2. Car spare parts, battery). As described in the following, for some products, it was necessary to obtain bespoke data from the ONS at the product-specific level (e.g. average weekly household spend on international air fares).²⁶

²⁰ A relevant domestic decision is one taken under U.K. legislation (Competition Act 1998, Enterprise Act 2002) by the CMA (or predecessor bodies) in which the conclusion was that there was an adverse actual or prospective impact on competition, and the decision was not subsequently overturned on appeal.

²¹ Although the United Kingdom left the European Union on January 31, 2019, EU competition law continued to apply during the “transition period” until December 31, 2020.

²² This assumes that the parties withdraw the merger because they anticipated that it would be prohibited in the form submitted.

²³ For example, where the geographic market was defined as the EEA, but the specific concerns about a merger or restrictive practices did not include the United Kingdom.

²⁴ As such, no formal decision was issued beyond a press release.

²⁵ Office of National Statistics (2006a to 2020a); Office of National Statistics (2006b to 2020b).

²⁶ The ONS has data recorded for around 8,900 products. However, the small sample sizes for some of these products means that they could not all be used in the analysis.

Table 1. Number of products examined by enforcement type and body

Enforcement body	Abuse of dominance	Market investigation	Merger	Restrictive agreements	Restrictive agreements & abuse of dominance	Total
U.K. competition agencies						
Office of Fair Trading	3		85	21		109
Competition Commission		12	63			75
CMA	4	10	93	27		134
EU competition agencies						
DG Competition	16		166	90		272
U.K. sectoral regulators						
Civil Aviation Authority					1	1
Ofcom	2				1	3
Ofgem	4			2		6
Ofwat	2					2
Office of Rail and Road	1				18	19
Total	32	22	407	140	20	621

Source: Authors' own analysis based on published decisions.

Table 2 shows the average annual household expenditure by the lowest, average, and highest-income households over the 15-year period. As can be seen, over that period, the average annual expenditure by the highest 10 percent of households was typically around 3.8 times greater than for the lowest 10 percent of households. In 2009, during the economic recession, all groups reduced their consumption, but in most other years, consumption follows an increasing trend.

Table 2. Number of households and average household expenditure per annum

Year	No. of households (000's)	Average household expenditure per annum per decile		
		Lowest decile household	Average household	Highest decile household
2006	25,379	£11,560	£23,348	£45,869
2007	25,609	£12,012	£23,878	£45,703
2008	25,875	£11,211	£24,492	£47,606
2009	26,042	£12,912	£23,660	£45,739
2010	26,240	£12,912	£24,627	£46,571
2011	26,409	£12,215	£25,147	£48,485
2012	26,620	£13,421	£25,428	£50,419
2013	26,663	£12,932	£26,900	£48,823
2014	26,734	£12,823	£27,628	£54,449
2015	27,046	£13,062	£27,420	£53,742
2016	27,109	£12,142	£27,503	£50,268
2017	27,226	£13,832	£ 28,818	£52,801
2018	27,576	£13,822	£ 29,936	£56,352
2019	27,824	£15,740	£30,451	£56,425
2020	27,820	£15,543	£30,571	£55,806

Note: Expenditure figures are nominal estimates. *Source:* Office of National Statistics, 2006a–2020a. “Detailed household expenditure by gross income decile group.”

IV. METHODOLOGY AND ASSUMPTIONS

Our methodology comprised a number of distinct steps. First, we extracted key data points from each relevant decision, including:

- a) Decision date
- b) Case Name
- c) Decision-making body (CMA, DG Competition, Sectoral regulator, etc.)
- d) Case type (merger, market investigation, etc.)
- e) Sector of decision
- f) Relevant product(s)—noting that a single decision may involve multiple products (e.g. a supermarket merger)
- g) Decision outcome
- h) Market share of the relevant parties to the decision (if available)
- i) Relevant geographic market
- j) Region affected (United Kingdom, England, local markets, etc.)

Our second step involved allocating each of the products identified in a decision to an appropriate expenditure category. For example, when an enforcement decision concerns ferry travel, it was allocated to one of either: 13 COICOP Divisions (e.g. 7 Transport), 63 Groups (7.3 Transport services), 186 classes (7.3.4 Other travel and transport), or 338 sub-classes of

expenditure (7.3.4.1.1 Water travel: ferry). This allocation was based on the principle that a product should be linked to the lowest level expenditure category for which data are available. In line with this principle, expenditure on milk was allocated to the sub-category “1.1.12 Milk” rather than the Group “1.1 Food” or Division “1. Food and non-alcoholic drinks.”²⁷

The third step involved adjusting the product and geographic market share estimates to account for the share of that expenditure category captured by the competition law decision. For the product market share, this involved applying an estimate of the share of a product in its relevant expenditure category. For example, the estimated 70 percent of the market covered by the local bus services market investigation was scaled down to reflect the fact that local bus services are only one component of the wider expenditure category “bus and coach fares.” For some products, supporting information and data were used to estimate the proportional contribution of a specific product to a particular expenditure category (e.g. in the local bus market example, the reduction was calculated as the share of local bus services as a proportion of total coach and bus services in that year). However, for other products, it was not possible to confidently estimate the proportion that a specific product contributes to an expenditure category. For these products, we applied conservative assumptions about the importance of the product to the expenditure category to scale the product market share. In some decisions involving intermediate products that household consumers do not typically individually purchase (e.g. steel and aluminum; road, air, or shipping freight services; financial products such as interest rate swaps, LIBOR), we excluded the products from the analysis to avoid potential bias associated with the arbitrary allocation of these products to different expenditure categories. While the need to exercise judgment when scaling the product market share is a limitation of our approach, we note that since market share is scaled by the same amount uniformly across all households, it does not affect our assessment of the distributive impacts of competition law decision. Furthermore, as described later, our estimates of overall savings are broadly aligned with those published by the U.K. competition agencies in most years. We believe this suggests that any scaling errors, if present, are not significant. Adjustments to the geographic market share were also made to take account of the fact that some products were only sold in specific geographic regions of the United Kingdom. For example, the merger between two water companies with geographic monopolies (meaning they had 100 percent share of supply in their region) was scaled down to account for the number of households in the regions affected by the merger. The adjusted product or geographic market shares were then applied to the estimated price reduction for each relevant product. For example, if the default price reduction for the merger was 5 percent, and the adjustment to account for the product market share of expenditure category was 70 percent, then the adjusted price reduction used in the analysis was 3.5 percent (5×70 percent).

A fourth step involved estimating the price “reduction” (or alternatively the price increase avoided) for each relevant product as a result of the competition law decision. The price reduction was calculated as the difference between the price index absent the decision (assumed to be 1) and a price index following the decision, as follows:

$$P_i = 1 - (\text{PR}^X * \text{AS}_i), \quad (1)$$

where P_i refers to the price index for product i following the decision, PR^X is the assumed price reduction for the type of enforcement action X (merger, restrictive agreement, abuse

²⁷ To avoid between-coder bias, allocation was carried out by one member of the team and only then was reviewed by the group.

Table 3. Standard assumptions for price effect and duration

	Price effect	Duration (years)
Merger	5%	2
Restrictive agreements	15%	6
Abuse of dominance	15%	6
Restrictive agreements & abuse of dominance	15%	6
Market investigation	5%	2

Source: Office of Fair Trading (2008, 2010a, b) and Authors' own assumptions.

of dominance, and market investigation), and AS_i is the adjusted market share for product i calculated in step 3 before. The assumptions about the magnitude of the price reduction (PR) which applies to different types of decisions are based on the standard or default assumptions used by the CMA (and predecessor bodies) to estimate the consumer impacts for different types of decisions (e.g. mergers, restrictive agreements, and abuse of dominance). These standard assumptions have been developed based on *ex post* studies of the estimated price impacts of competition law decisions relating to mergers, restrictive agreements, and abuse of dominance cases.²⁸ In the case of market investigations, no standard assumptions exist and we adopted the conservative assumption that the price effect and duration would be the same as for mergers (which is the lowest).

A fifth step in our analysis involved estimating the duration of the consumer benefit from the competition law decision. This captures the amount of time that consumers are assumed to benefit from a price reduction vis-a-vis a counterfactual where enforcement action was not taken. We calculate the duration from the year in which the decision was taken; so, if a decision was taken in 2010, and there is expected to be benefits to consumers for 2 years, then we calculate the total benefit using the average household expenditure on that product in 2010 discounted over the 2-year period.

Table 3 details the standard price effect and duration assumptions used in our analysis.

The sixth step involved drawing on the ONS Household Expenditure Survey to calculate the annual expenditure on each relevant product by the lowest, average, and highest-income households in the year the decision was taken. This is expressed as both an annual expenditure on that product (in £) and also as a percentage of the overall expenditure for that household income group (percent terms). This information was used to estimate the annual saving to the lowest, average, and highest-income households for each relevant product using the following formula:

$$\text{Annual saving}^{Hi} = \text{Exp}_t^{Hi} * (1 - P_i), \quad (2)$$

where Exp_t^{Hi} is the annual expenditure on product i by household income group H in year t and P_i is the adjusted price index for product i calculated in equation (1) that incorporates the savings (in percentage terms) associated with the competition law decision. To take account of deterrent effects, we apply the multiplier factors in *Dierx et al. (2017)* who conducted a detailed survey of previous studies (see Section V). Applying these multipliers provides us with estimates of the quantifiable deterrent savings from competition law enforcement. These estimates range from a level of “direct savings” (which captures the amount that households saved from the avoided price increases without taking into account any deterrent effect) to a higher level of “combined savings” (which includes the direct savings and the deterrent effect). In our analysis,

²⁸ See Office of Fair Trading (2008, 2010a, b).

we assume that all of the deterrent effect is realized in the same household expenditure category as the decision. This is because it is not possible to quantify the wider benefits that arise where a decision generates a deterrent effect outside of the expenditure category of a decision,²⁹ or the wider “spillover” effects from increased competition culture. Accordingly, although we present the combined savings as single point estimates, we note that our estimates may not capture the total savings generated from competition law enforcement.³⁰

The annual direct and combined savings for each individual product were then summed to provide estimates of the annual saving to the lowest, average, and highest-income households across all products and years (in £ annual savings and as a percentage of the annual expenditure for each household group).

The final step involved estimating the total discounted direct and combined savings to the lowest, average, and highest-income households for each product. This calculation is given as

$$PV^{Hi} = \left(df, t^x, \left(P_i \times \text{Exp}_t^{Hi} \right) \right), \tag{3}$$

where PV^{Hi} is the total discounted (present value) of the annual savings on relevant product i by household income group H over the assumed duration; df is the applicable discount factor,³¹ t is the duration for which price reductions are assumed to accrue as a result of that type of decision x , P_i is the adjusted price of product i as a result of the competition law decision, and Exp_t^{Hi} is the expenditure on relevant product i by household income group H in period t . Once again, these values were summed to provide estimates of the total discounted savings to the lowest, average, and highest-income households across all relevant products. Given the different durations of the savings, to estimate the total cumulative percentage saving, we first need to estimate the percentage saving for each product and then sum these estimates to give an overall estimate of the saving as a percent of lowest/average/highest household expenditure.

A number of important assumptions underpin our methodology and approach. First, we assume that all the impacts of a competition law decision on consumers can be monetized and reflected in price reductions. This includes improvements in quality of service. These assumptions are consistent with those adopted by the CMA (and predecessor bodies).³² Second, we assume that consumers purchase a fixed volume of each relevant product over the entire duration of the period in which a priced reduction associated with a relevant decision is in effect. In other words, we do not adjust for any volume impacts that could follow a price reduction associated with a relevant decision. Again, this assumption is consistent with that adopted by the U.K. competition authorities in estimating the consumer impacts of its decisions. It is also consistent with the approach to estimating price inflation, which assumes that consumers purchase a fixed basket of goods and services and that the volumes consumed do not vary from that assumed in a base year. A third assumption is that the price reduction associated with a relevant decision is uniformly applied across all consumers. Fourth, we assume that the benefits to consumers

²⁹ For example, the deterrent effects of the European Commission’s *Rambus* abuse of dominance decision could have manifested in three ways: (i) by deterring Rambus from engaging in similar conduct in the future; (ii) by deterring other dominant undertakings in the same expenditure category as Rambus (e.g. other providers of computer services) from abusing their position; or (iii) by deterring dominant undertakings of other household services across the economy from abusing their position, or more generally supporting a competition culture. Our estimate of combined savings does not capture category (iii).

³⁰ The combined savings presented could be overestimates where the full deterrent effects of specific decisions were not realized in the same household expenditure categories for products consumed by those on low, average, and high incomes. Conversely, they could be underestimates where the deterrent effects from a specific decision affects the behavior of firms operating in other household expenditure sectors.

³¹ This is based on the standard approach of the U.K. government for discounting future accruals of benefits or costs and is based on a social time preference rate of 3.5%.

³² Office of Fair Trading (2008, 2010a, b).

from a competition law action accrue from the year in which a decision was taken. This is based on the counterfactual that if the competition law decision had not been taken, then consumers would likely have faced higher prices in the future for a certain period of time—e.g. 2 years in case of a merger. Fifth, the analysis is based on the methodology used by the ONS to estimate household expenditure over time and thus assumes that various background factors which could affect these consumption estimates are stable over time.

Our analysis focuses on public enforcement of competition law. As such it does not take account of the possible impact of private litigation, stand-alone and follow-on damage claims, out of court settlements, and arbitration. While we appreciate that these actions contribute to the effectiveness of enforcement and support a competitive culture, lack of public data on the totality of effects prevented us from integrating private enforcement in our analysis.

While some of our assumptions may be considered imperfect for estimating the size or absolute scale of the direct and combined savings accruing to households from competition law enforcement, we note that much of our analysis is on estimating relative savings for different households. As such, even if an assumption about the impact of a decision might be challenged as somewhat imprecise (e.g. an estimated price effect is too low or too high), because it is being applied consistently to both the lower-, average-, and higher-income households, this allows us to still investigate our question of interest.³³

V. SAVINGS TO THE AVERAGE U.K. HOUSEHOLD FROM COMPETITION LAW ENFORCEMENT

Our analysis suggests that the direct savings (excluding deterrent effects) of competition law enforcement to U.K. households was on average £150 per year over the past 15 years (Table 4). Enforcement against restrictive agreements yielded the greatest overall direct savings to the average household (around £59 per year) followed by mergers (approx. £47 per year), market investigations (approx. £27 per year), and abuse of dominance actions (approx. per £22 per year). Of the estimated £150 direct saving to the average U.K. household, around £89 (59 percent) came from action by U.K. competition authorities, £49 (33 percent) from enforcement action by DG competition, and £13 (9 percent) from enforcement action by sectoral regulators using concurrent competition powers.

As a robustness check, we compared our estimates of direct savings generated by U.K. competition authorities (excluding DG Competition and U.K. sectoral regulators) with those that were published by the U.K. competition agencies over the same period (Table 5).³⁴ While there are some differences in individual years, over the 14-year period for which data are available, our average direct savings per household estimate of £34 are very similar to that of the U.K. competition agencies estimate of £32.³⁵

Differences in individual years may reflect various factors. First, that we have used the default assumptions for every decision while the CMA (and predecessor bodies) can, and do, deviate from these default assumptions when estimating the consumer savings of individual decisions. Second, there are timing issues associated with some decisions (our calculation is for calendar years, while the U.K. competition authorities are for the year ending March 31). Third, the samples of cases used are not identical. As described before, we excluded decisions involving

³³ One caveat to this point is that we assume that price elasticities do not vary by household income level. Unfortunately, we have not been able to locate any estimates for the United Kingdom of income and price elasticities to be able to conduct such a sensitivity check.

³⁴ This includes the OFT and Competition Commission between 2007 and 2014 and the CMA from 2015 to 2020. These savings relate to mergers, restrictive agreements, abuse of dominance, and market investigations.

³⁵ These estimates are the direct savings and thus exclude deterrent effects. We were not able to locate any estimates of the direct consumer savings of U.K. competition bodies for the year 2006 to include a comparison.

Table 4. Estimates of direct savings per year of competition law enforcement for U.K. households

	Direct saving per household in the year the decision was taken (£)	Overall direct household saving over the full duration of effect (£)
2006	41	152
2007	35	104
2008	78	176
2009	43	167
2010	40	173
2011	47	164
2012	43	118
2013	20	61
2014	36	160
2015	48	170
2016	70	191
2017	62	171
2018	38	124
2019	64	154
2020	76	178
Average saving	50	151

Note: The annual direct saving is the savings generated in the year in which the decision was taken, while the overall direct saving is the savings estimated for the total period in which the enforcement action is assumed to have an effect. *Source:* Authors' own analysis.

Table 5. Comparison of direct savings to those estimated by U.K. competition authorities

	Savings per household estimated by U.K. competition agency (£)	Our estimate of direct saving per average household (£)
2007	17.67	17.54
2008	42.82	56.04
2009	23.09	22.21
2010	23.18	21.05
2011	22.67	42.06
2012	25.03	24.71
2013	16.95	13.66
2014	24.92	26.29
2015	24.85	28.94
2016	22.48	38.46
2017	42.96	51.80
2018	38.31	25.30
2019	38.03	45.87
2020	87.49	70.68
Average saving	32.18	34.62

Note: The difference between our estimates of savings per average household in this table and Table 4 is because this table only captures the work of U.K. competition agencies and thus excludes savings associated with enforcement by U.K. sectoral regulators and DG competition. *Source:* Office of Fair Trading (2007, 2008b, 2009, 2010d, 2011, 2012, 2013, 2014), Competition Commission (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014), Competition and Markets Authority (2015b, 2016, 2017b, 2018b, 2019, 2020).

intermediate products which could not be allocated to a specific expenditure category, while the U.K. competition agencies have, for some decisions (such as certain market investigations), apportioned the savings between themselves and U.K. sectoral regulators. Fourth, while we have adopted a conservative default assumption for market investigations that accords with merger

investigations (5 percent price reduction for 2 years), competition agencies do not use a default assumption for this enforcement tool.

As a second robustness check, we compared our estimates of the direct savings for the United Kingdom in 2019 with estimates from other jurisdictions that undertook a similar exercise in that year (Table 6). We estimate that a direct saving of £64 per average U.K. household in that year. In comparison, the estimated savings by federal public enforcement of U.S. antitrust law in that year (by the Department of Justice and Federal Trade Commission) was estimated at around £57 (or \$72 USD) per average household. The estimated direct savings from the European Commission's enforcement actions against mergers and cartels in 2019 is between £32 and £53 (€37–60) per average household.

Table 6 shows that our estimates of the direct household savings in the United Kingdom from EU and U.K. competition enforcement are broadly comparable with those reported other similar jurisdictions.

It is important to stress that the abovementioned data capture only the direct savings of enforcement actions and do not include the additional savings from competition law enforcement that arise because of the deterrent effects of a decision (what we refer to as the “combined savings”).³⁶

The deterrent effects of competition law have been examined extensively in the literature.³⁷ Taking account of factors such as selection bias (that undetected cartels are likely to be more harmful as are more anticompetitive mergers that are notified), Davies and Ormosi (2013) estimate that the direct effects of competition law enforcement could be multiplied by a factor of up to 30 for cartels and 17 for mergers.³⁸ Looking at the total impact of competition enforcement (including deterrent effects), Dierx *et al.* (2017) estimate that EU competition law enforcement could have contributed up to 0.4 percent of GDP after 5 years and 0.8 percent over the long term.

As described in Section V, to quantify the deterrent effects in our study, we applied the multiplier factors used in Dierx *et al.* (2017). Specifically, we assume deterrent effects of 10 for merger decisions and 20 for cartels and other forms of restrictive agreements. We also applied a multiplying factor of 20 for abuse of dominance decisions on the basis that companies which hold dominant positions are typically sophisticated players who will likely be aware of, and influenced by, any competition authority decision on abuse of dominance.³⁹ For market investigations, we have applied a multiplier of 2 to the direct savings. While market investigations tend to focus on specific competition issues in an industry and thus have limited influence across sectors, our decision to apply a small multiplier to the direct savings is driven by two factors. First, some market investigations were undertaken in sectors that are subject to high levels of regulatory oversight (airports, energy, and banking), and as such, the experience of a market investigation in one sector could influence those operating in similar heavily regulated sectors

³⁶ There are two aspects to deterrence to consider here. The first is that the deterrence effect that competition law enforcement can have on those who are currently engaging in anticompetitive conduct—e.g. participants in existing cartels, firms abusing a position of dominance or mergers that could substantially lessen competition. Effective competition law enforcement sends a signal to these firms that such conduct will likely fall foul of competition law, which increases the incentives to cease the anticompetitive conduct. The second aspect to deterrence is forward looking in nature. Simply put, effective competition law enforcement can change the incentives of firms to engage in conduct which can result in future harm to consumers. For example, firms may be less likely to enter into restrictive agreements, contemplate mergers that have anticompetitive elements, or engage in abusive conduct where they hold a position of dominance.

³⁷ Dierx *et al.* (2017) provide a useful survey of these studies.

³⁸ Davies and Ormosi (2013) suggest a range of multiplying factors of between 6 and 17 for mergers and 17 and 30 for cartel decisions.

³⁹ This is supported to some extent by the findings in Competition and Markets Authority (2018c) that awareness of competition law is higher in medium/large businesses and that 53% of firms surveyed were aware that dominant firms are under a special responsibility not to allow their conduct to impair competition beyond the rules applicable to other companies.

Table 6. Estimated direct annual household savings from competition law enforcement in United Kingdom, United States and EU in 2019

	United Kingdom		United States		European Commission	
	(Millions)		(Millions)		(Millions)	
CMA	1,275		3,951	Cartel	1,500	2,300
DG competition	440		4,860	Mergers	5,700	9,400
Sectoral regulators	74					
Total direct savings	£1,790		\$8,811		€7,200	€11,700
Number of households	27.8		121		195	195
Average saving per household (local currency)	£64		\$72.82		€36.90	€32.37
Average saving per household (£)	£64		£57		£32	£52

Source: European Commission (2019); Federal Trade Commission (2021); Department of Justice (2021).

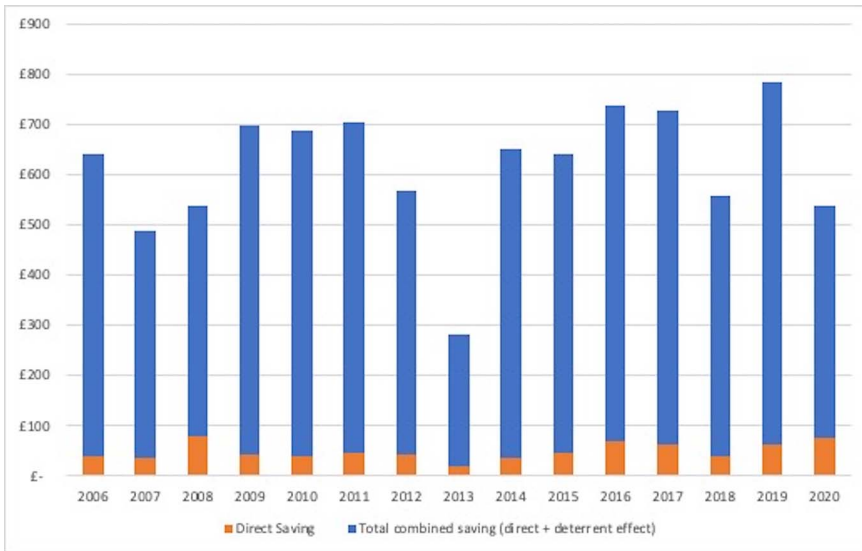


Figure 1. Annual combined savings in £ per household from EU and U.K. competition law enforcement, 2006–2020.

(e.g. water, communications, and wider financial services). Second, several market investigations have identified similar concerns, including vertical arrangements or measures taken by companies that restrict or impede consumer engagement. We conjecture that some companies operating in other sectors (or their advisors) would take some notice of which practices were found to have adversely affected competition in a market investigation.

As expected, applying these deterrent multipliers substantially increases the combined household savings from competition law enforcement over the period (Figure 1). In 2019, for example, the combined saving is up to £785 saving per household in that year, comprising £64 direct saving and £720 deterrent saving. These savings equate to between 1 percent and 2.8 percent of annual U.K. household expenditure, with an average saving of up to 2.1 percent of household expenditure over the period examined (Figure 2).

For the purposes of our distributional analysis in the following, we report both the direct savings and the combined savings (direct plus quantifiable deterrent effects). As described earlier, while we present these estimates as the direct and combined savings of competition law, they may still underestimate the overall household benefits of competition law enforcement for a number of reasons (i.e. they may not be the total benefit). First, as noted before, we are unable to quantify the savings generated when a particular decision in one expenditure category deters anticompetitive conduct in another household expenditure category. Second, the analysis does not take account of how actions which result in lower prices for intermediate goods—such as freight services, materials, and primary products (e.g. energy)—propagate through the economy. To the extent that lower prices for intermediate goods are passed through into final prices, this would yield additional household savings not captured in the abovementioned estimates.⁴⁰ Third, as described before, the estimates are based on the assumptions used by U.K. competition authorities (which are broadly similar to those in other jurisdictions) about the benefits of competition law enforcement. However, it is widely acknowledged that these are conservative

⁴⁰ Dierx *et al.* (2017) present such an analysis for the EU using a General Equilibrium model.

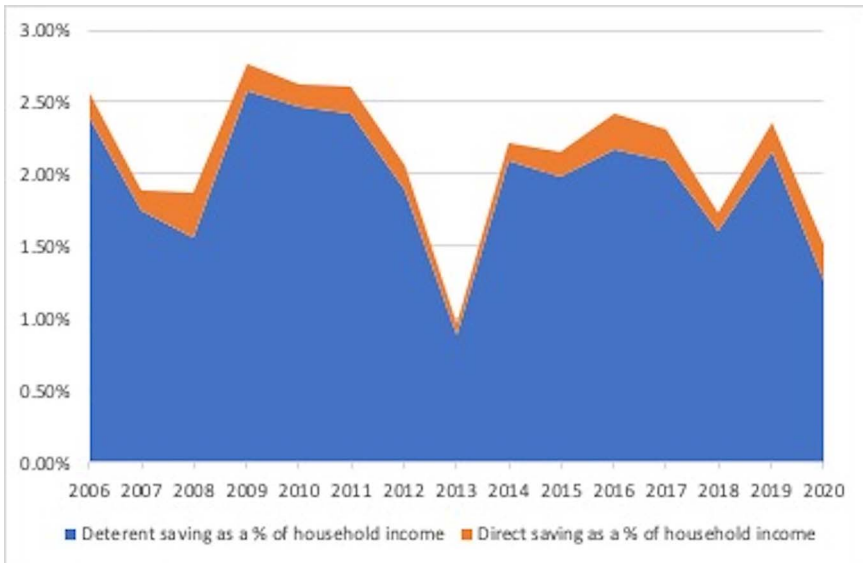


Figure 2. Annual combined savings as a percentage of household expenditure, 2006–2020.

assumptions about the impacts of competition law and thus present only a “partial” picture of the savings attached to competition law enforcement.⁴¹ Finally, the estimates presented do not take account of the wider potential positive and dynamic benefits to households of a robust competition culture. This includes benefits in terms of product and process innovations that can be fostered in competitive markets and the expansion in choice that can accompany new entry by firms who are reassured that any attempts by incumbent firms to act anticompetitively will be dealt with through competition law.

VI. DISTRIBUTION OF DIRECT AND COMBINED HOUSEHOLD SAVINGS

This section considers how the savings of competition law enforcement were distributed across the lowest, average, and the highest-income households. Our first finding is that over the period between 2006 and 2020, the enforcement of EU and U.K. competition law consistently resulted in greater absolute direct savings (in £ per year) for higher-income households than lower-income households. High-income households directly saved at least an average of £80 per household per year from competition law enforcement, while the lowest-income households saved at least an average of £29 per household per year (Figure 3). Taking account of the deterrent effects of competition law enforcement, we estimate that the average combined saving for the lowest-income households was up to £323 per year compared with £567 for the average-income household and £928 for households in the highest-income bracket (Figure 4).

When considering possible distributional and equality effects, one needs to account for the fact that wealthier households have more resources, and spend more on goods and services, than average or poorer households. For our analysis, of key relevance are the savings expressed as a proportion of the annual budget of households at different income levels. This is because

⁴¹ Davies and Ormosi (2013) observe the estimates used by competition authorities are typically derived using very conservative assumptions to avoid accusations of self-justification. Similarly, Dierx *et al.* (2017) note that the values of these different parameters depend on the characteristics of the case and are a rather conservative reflection of the relevant literature.

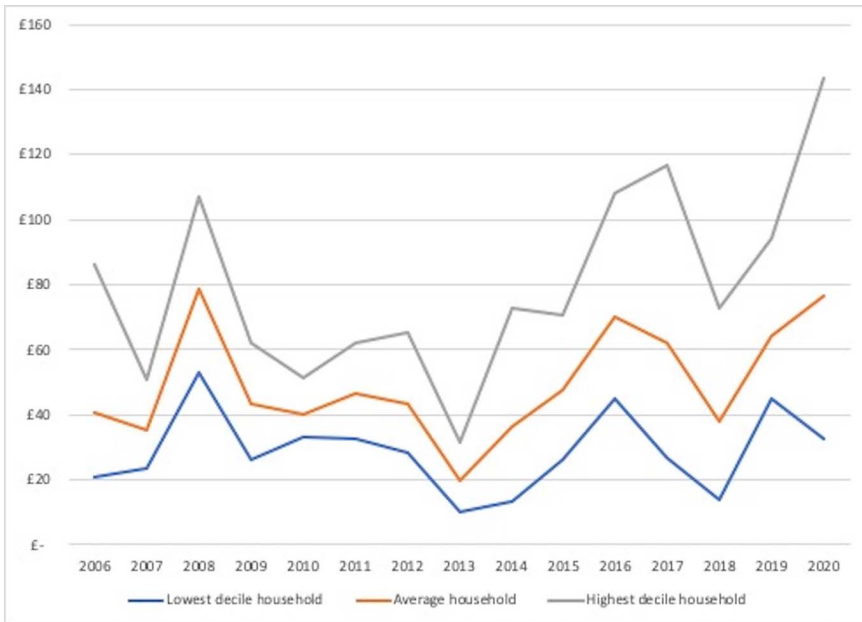


Figure 3. Estimates of annual direct savings for low-, average-, and high-income households, 2006–2020 (£ per household).

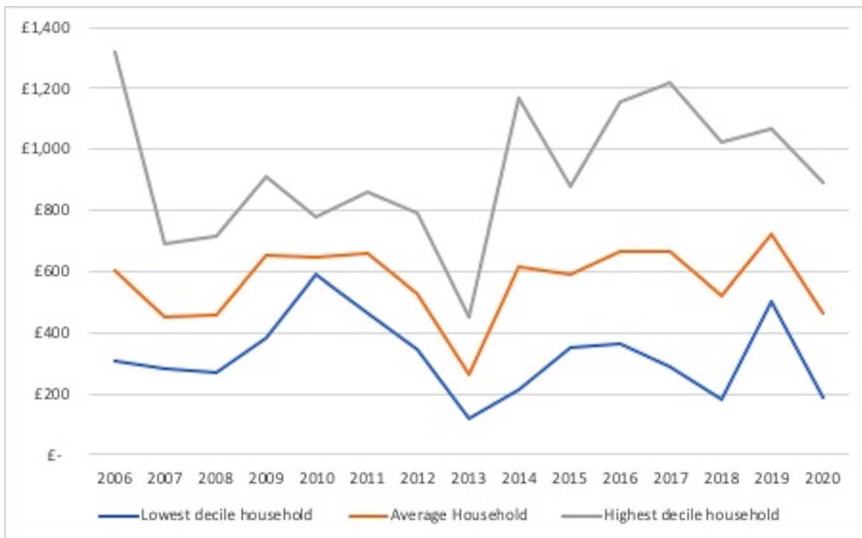


Figure 4. Estimates of annual combined savings for low-, average-, and high-income households, 2006–2020 (£ per household).

although the absolute level of household saving from competition law enforcement (e.g. £100 saving per year) is the same if households at different income levels consume the same products at the same volume (e.g. consume the same amount of milk and electricity), the effects of those savings on household budgets is proportionally greater for those on lower incomes than high

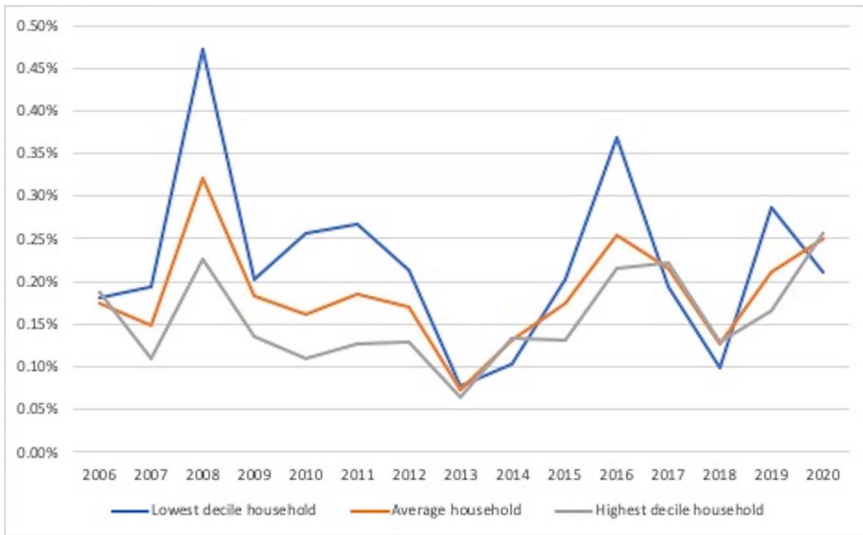


Figure 5. Estimates of annual direct savings for low-, average-, and high-income households, 2006–2020 (as a percent of household budget).

incomes. After all, a £100 annual saving to a household with an annual budget of £15,000 is worth proportionally more to that household than to a household with an annual budget of £150,000.

When the savings are adjusted to take account of actual consumption patterns and expressed as a proportion of household budget, we find that the direct savings resulting from competition law enforcement as a proportion of annual household expenditure were generally, but not always, greater for the lowest-income households relative to the highest-income households (Figure 5). As a proportion of household income, competition law enforcement resulted in an average direct saving of around 0.22 percent of annual expenditure for the lowest-income households, 0.19 percent for the average household, and 0.16 percent for the highest-income household. Allowing for deterrence effects, we estimate that the combined savings as a proportion of household income was, on average, up to 2.5 percent of annual expenditure for the lowest-income households, 2.1 percent for the average household, and 1.8 percent for the highest-income households (Figure 6).

The analysis shows that over the past 15 years, competition law enforcement had a proportionally greater impact on the household budgets of lower-income and average-income households relative to higher-income households. In other words, given the amount of budgetary resources that low- and average-income households have to spend, the savings generated by competition law enforcement allowed them to save proportionally more of that budget than for higher-income households. In some years, the combined savings accruing to the lowest-income households from competition law enforcement was up to 4.6 percent of their annual household budget. This is equivalent to around £12 per week; a not insubstantial amount for the estimated some 19.6 million people living in households that earned <£399 per week in 2019.⁴² However, it is not only those in the lowest-income households that benefitted from competition law enforcement; we estimate that the combined savings from competition law enforcement to

⁴² House of Commons (2021).

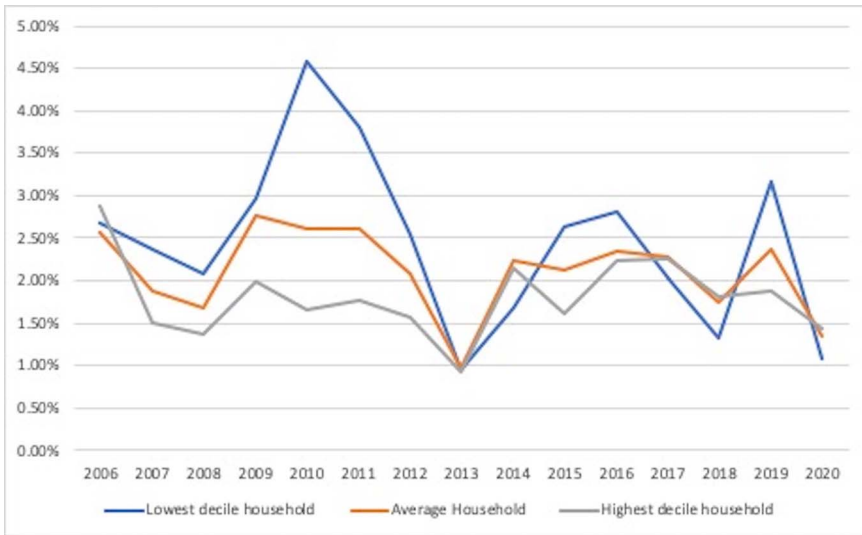


Figure 6. Estimates of annual combined savings as a percent of household budget for low-, average-, and high-income households, 2006–2020 (as a percent of household budget).

those on average incomes was in some years up to 2.8 percent of their annual household budget, saving these households up to £14 per week. Taken together, the points suggest that competition law has been, and can be, a progressive policy generating greater relative savings to lower-income households vis-a-vis higher-income households.

We believe that our finding that competition law has been progressive rather than neutral is a not deterministic outcome (i.e. simply a function of the cases that presented themselves) nor was it necessarily inevitable. Rather, it reflected myriad of choices about the composition of enforcement tools and the enforcement bodies. Let us explore these in more detail.

VII. THE DISTRIBUTION OF HOUSEHOLD SAVINGS BY COMPETITION LAW TOOL

How does the choice of competition law tool affect the distribution of savings to those consumers in the lowest- and average-income households as compared with the highest-income households?

We find that merger enforcement yielded the greatest overall direct and combined savings to households at all income levels (in £ saved). The direct savings from merger enforcement were considerably more for those in the highest-income households as compared with those in average or low-income households. Merger enforcement also generated the greatest combined savings (including deterrence effects) to the lowest- and average-income households. Interestingly, once we look at income categories, we note that, for high-income households, the tool which generated the greatest combined saving was enforcement against restrictive agreements. This high level of combined savings attached to enforcement against restrictive agreements reflects the assumed strong deterrent effects of action against cartels and other forms of restrictive agreement, and the products that have been investigated.

When savings are expressed as a proportion of household expenditure, merger enforcement had the biggest relative impact on the lowest- and average-income household budgets compared with the highest-income households, followed by restrictive agreements (Table 7). That is, the

Table 7. Average annual combined savings by enforcement tool as a % of household budget

Enforcement tool	Number of products	% of Household budget				Difference between lowest and highest deciles
		Lowest decile household	Average household	Highest decile household		
Abuse of dominance	32	0.26%	0.26%	0.20%	0.06%	
Market investigation	22	1.10%	0.07%	0.06%	0.03%	
Mergers	407	1.09%	0.91%	0.75%	0.34%	
Restrictive agreements	160	1.04%	0.90%	0.82%	0.22%	
Average annual saving	621	2.49%	2.14%	1.84%	0.66%	

Source: Authors' own analysis.

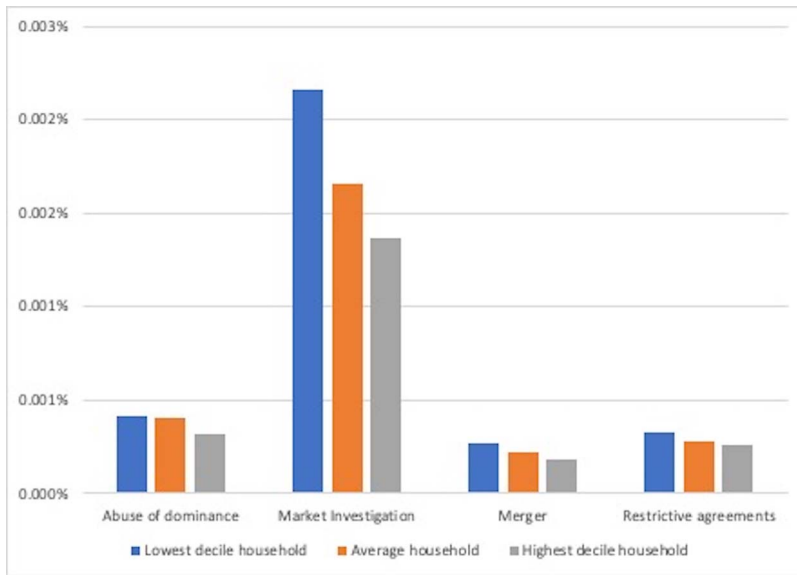


Figure 7. Estimate of annual direct savings per product investigated using different competition law tools, 2006–2020 (as a percent of household budget).

difference between the average savings to the lowest and highest-income households was the greatest when this tool was used. The greatest proportional gains to the lowest-income households were associated with mergers involving supermarkets, energy companies, mobile phone companies, tobacco, milk companies and soft drinks. By contrast, the greatest proportional gains to the highest-income households were mergers involving mainline rail companies, air passenger transport, new cars and the motor industry, restaurants, and hotels, as well as recreation and cultural activities (live theaters, cinemas, etc.).

The combined savings estimates presented in [Table 7](#) are partly driven by the large number of merger and restrictive agreement enforcement actions. To account for this volume effect, we have divided the savings by number of products investigated to estimate the savings from different tools on a per product investigated basis. When direct savings are expressed on a savings per product basis, market investigations yielded the highest benefit for lowest- and average-income households (as a percent of household budget; [Figure 7](#)). This reflects the types of products that have been subject to market investigation, with the greatest proportional direct savings to the lowest-income households being associated with the investigations into the groceries market, local bus services, payday lending, and energy markets. By contrast, the market investigations into store card credit and home credit, airports, private healthcare, and investment consultants all yielded greater proportional benefits to the highest-income households, no doubt reflecting the low levels of consumption of these products and services by those on the lowest incomes. These differences in effects underscore the impact the choice of industry to be investigated may have on distributional aspects.

While market investigations generated the greatest direct savings per product investigated, they yielded a lower level of combined savings (i.e. direct and deterrence savings) per product investigated. This reflects the fact that while they may bring immediate direct savings to households, we have assumed that such investigations have a small deterrent effect. Abuse of dominance actions yielded the highest average combined savings for lowest- and average-income households on a per product investigated basis ([Figure 8](#)). The greatest proportional

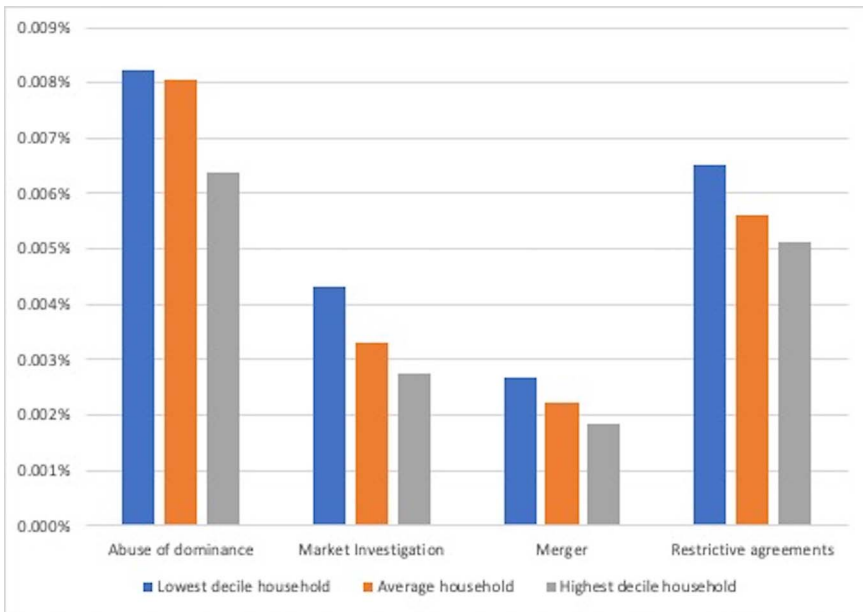


Figure 8. Estimate of annual combined savings per product investigated using different competition law tools as a percent of household budget, 2006–2020.

gains to the lowest- and average-income households (as a percentage of household expenditure) were associated with abuse of dominance inquiries by the sectoral regulators using concurrent competition powers into the energy and water sectors.⁴³

To summarize, merger enforcement generated the greatest direct and combined savings (in £ per year) as well as the greatest proportional savings of the available household budget for those on the lowest and average incomes. While this suggests that merger enforcement has offered the best tool for addressing inequality, one needs to take account of the large number of merger decisions in our sample. Once this is considered, our analysis shows that on a per product investigated basis, market investigations yielded the greatest direct savings for lowest- and average-income households (as a percent of household budget), while merger enforcement yielded the smallest. In other words, every product investigated using the market investigation tool directly saved the lowest-income households more than any of the other tools. However, once deterrent effects are considered (i.e. the combined savings), the picture changes again. Specifically, on a per product investigated basis, abuse of dominance investigations generated the greatest combined savings to lowest- and average-income households, followed by restrictive agreements. This is not surprising and reflects the higher assumed multiplier effect of such actions as compared with mergers and market investigations.

These results highlight the role case prioritization, choice of enforcement tools, and the sectors affected may have on distributional aspects. While merger investigations are largely driven by merger activity in a given industry and market, competition law enforcement bodies

⁴³ This reflects the wide geographic coverage of the decisions; the assumed duration of the savings associated with competition law enforcement (6 years); and the relatively higher proportion that energy and water charges comprise of low household budgets. The energy decisions were National Grid (gas metering); Electricity North West (connections); SSE electricity (connections), and EPEX (cross-border intra-day trading platform). The water decisions were Severn Trent (water analysis services) and Water Company Self-Lay Charges.

have greater discretion about the prioritization of cases when applying other enforcement tools. They may opt to use different instruments (*ex ante* market investigation or *ex post* antitrust scrutiny) and focus resources on different markets or industries. Our analysis implies that, from a purely distributional perspective, in a given market or industry, the choice of the most appropriate tool to use may, in part, depend on the extent to which there are assumed to be wider deterrent impacts attached to that tool beyond the immediate product being investigated.

VIII. THE DISTRIBUTION OF HOUSEHOLD SAVINGS BY COMPETITION ENFORCEMENT BODY

In addition to the examination of the competition law tool, we are also interested in the possible effect generated by the enforcement body. This inquiry adds another interesting dimension that may offer insight as to the way in which ideology, resource allocation, internal decision-making processes, and the principal focus of the enforcing bodies may affect distributional outcomes.

As we engage in this inquiry, it is worth noting that while some bodies (such as U.K. competition agencies) focused solely on competition law enforcement in United Kingdom, others had a different principal focus (e.g. the focus of sectoral regulators was on applying economic regulation, while DG Competition focused on applying EU wide competition law enforcement against the backdrop of wider goals such as creation of the internal market). These differences may have influenced the choice of cases to pursue (prioritization) and also how the cases are managed and resolved. After all, the different enforcement bodies have different powers at their disposal; U.K. sectoral regulators could sometimes choose to apply competition law or use regulatory powers to address specific competition issues.⁴⁴ Similarly, the European Commission has sometimes used a combination of competition law and regulatory powers to address persistent competition law issues in some areas.⁴⁵

In some matters, enforcers also had some discretion about which tools to apply, for example, whether to pursue a matter as a restrictive agreement or an abuse of dominance or a combination of both. Enforcers also had some discretion about whether to launch a market study or investigation rather than use traditional competition law powers. Likewise, enforcement bodies had some discretion about whether to accept any commitments or undertakings offered by the parties, which is particularly relevant in the context of merger investigations.

With these points in mind, we explore the relative distributional impacts of the enforcement of competition law by three bodies: DG Competition, the U.K. competition agencies (CMA, Competition Commission, and the Office of Fair Trading), and the sectoral regulators with concurrent competition law powers (CAA, Ofcom, Ofgem, Ofwat, and the ORR). We find that in aggregate the enforcement actions by all three bodies provided greater combined savings to lower-income households as compared with higher-income households when expressed as a proportion of household income (Table 8). U.K. competition agencies accounted for the greatest relative direct and combined savings to U.K. households on low and average incomes compared with households on high incomes, followed by enforcement by DG Competition.

When direct savings are weighted by the number of products examined by each body, we find that U.K. competition agencies saved low-income consumers proportionally more per

⁴⁴ For example, the U.K. communications regulator (Ofcom, 2010) has in the past indicated a preference for using its regulatory arbitration powers to resolve access disputes than competition law. More generally, it has been noted that there was a preference for U.K. regulators to use sectoral regulation powers rather than concurrent competition law powers. See BIS (2011).

⁴⁵ Most notably in relation to credit card interchange fees, where a series of competition law cases ultimately led to the regulatory capping of interchange charges, and in energy, where aspects of various energy directives have been influenced by competition law actions.

Table 8. Average estimates of combined savings by enforcement body as a % of household budget

Enforcement body	Number of products	% of Household budget				Difference between lowest and highest deciles
		Lowest decile household	Average household	Highest decile household		
U.K. Competition Agencies	318	1.46%	1.20%	1.02%	0.44%	
DG Competition	272	0.77%	0.76%	0.68%	0.09%	
U.K. sectoral regulators	31	0.26%	0.18%	0.13%	0.12%	
Average annual saving	621	2.49%	2.14%	1.84%	0.66%	

Source: Authors' own analysis.

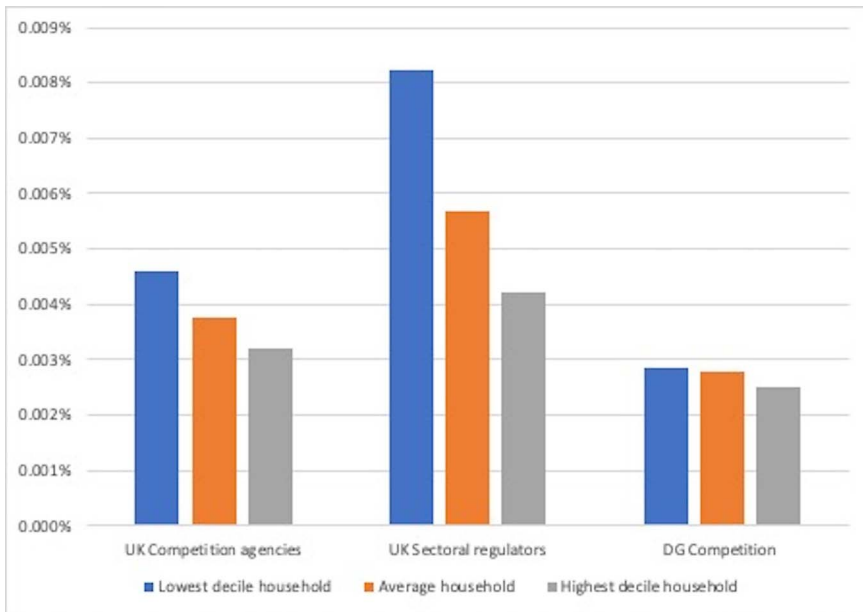


Figure 9. Estimates of annual combined savings per product investigated by different enforcement bodies (as a percent of household expenditure), 2006–2020.

product (expressed in terms of percent of household budget) compared with decisions taken by DG competition over the 15-year time period. However, the picture changes when we look at the combined savings which includes the deterrent effects of competition law. When the combined savings are weighted by the number of products examined, the sectoral regulators saved low-income consumers proportionally more per product (expressed in terms of percent of household budget) compared with decisions taken by U.K. competition authorities and DG competition over the 15-year time period (Figure 9). The largest differences were recorded in the abuse of dominance enforcement actions by the energy and communications sectoral regulators, which generated greater benefits to lower-income households as a proportion of household budget. The deviation between the direct and combined savings generated by different enforcement bodies reflects the fact that sectoral regulators only investigated matters involving an abuse of dominance or restrictive agreement, both of which are assumed to have a high deterrent effect.

To summarize, we find that when account is taken of differences in the number of matters investigated, U.K. competition authorities and U.K. sectoral regulators (using concurrent competition law powers) generated greater proportional benefits to the lowest- and average-income households compared with the highest-income households. This result may in part reflect the fact that a greater number of decisions considered by DG competition involved intermediate products, which were more removed from final household consumers.

While the enforcement actions of U.K. competition agencies generally benefitted lower-income households proportionally more than higher-income households (as a percentage of household budget), the distributional impacts vary by year. In 5 of the 15 years examined, the proportional savings accruing to the highest-income households were actually greater than for the lowest-income households. Examples of actions where the benefits were substantially greater for higher-income households than lower-income households involved products, such as the

purchase of new cars, private school education, and online purchase of clothing, footwear, and other durables. Similarly, while enforcement by DG competition also resulted in greater proportional benefits to the lowest-income households than higher-income households overall, in 4 out of the 15 years, such actions generated greater savings for those on the highest incomes. DG Competition enforcement actions that resulted in the greatest relative benefits to lower-income household budgets were for products, such as mobile telecoms, tobacco, and energy, while the greatest relative benefits to higher-income household budgets were from its investigations into the LCD and hotels cartels.

IX. THE DISTRIBUTION OF SAVINGS BY EXPENDITURE SECTOR

The final aspect of our analysis focused on the distribution of the direct and combined savings by expenditure sector. The results show that the largest direct and combined savings to lowest-income households have come from enforcement actions for products in the food, housing, alcoholic drink, and tobacco and communications sectors (Figure 10). Enforcement in these sectors have yielded substantially greater combined savings (as a percent of household budget) for lower- and average-income households compared with higher-income households. By contrast, enforcement actions involving transport (such as air travel), restaurants, and hotels and education were of more benefit to the highest-income households.

This sectoral distribution of the savings from competition law enforcement is not surprising insofar as it reflects the underlying consumption patterns of low-, average-, and high-income households. Still, it has important implications in terms of our understanding of distributional

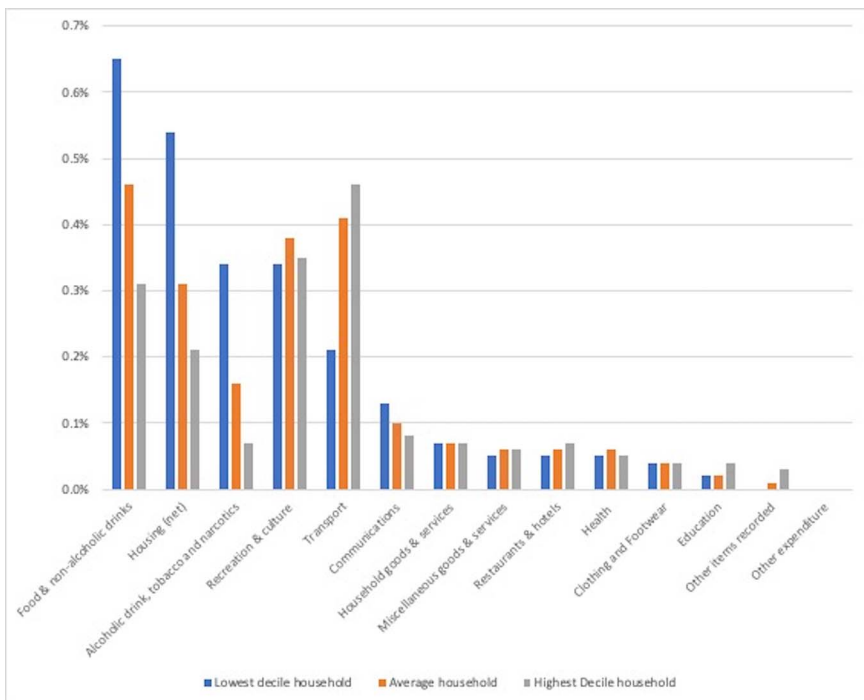


Figure 10. Estimate of average combined savings by expenditure sector as a proportion of household budget.

effects of choices made by competition authorities about where enforcement efforts should be directed. Simply put, our analysis suggests that enforcement efforts in the food and drink sector brought the largest benefits to those on the lowest incomes, while enforcement in the recreation and culture sector brought the largest benefit to those on average incomes, and enforcement involving the transport or restaurant and hotel sectors brought the greatest proportional benefits to those on the highest incomes.

X. CONCLUSIONS

We examined how the savings generated by the enforcement of U.K. and EU competition law enforcement over a 15-year period have been distributed across low-, average- and high-income households in the United Kingdom. While those in the highest-income households saved the most in monetary terms, once we take account of the differences in household budgets and consumption patterns, we find that competition law enforcement resulted in greater proportional savings to those in lower- and average-income households relative to the wealthiest households. We estimate that the average combined savings (direct saving plus quantifiable deterrent) was up to 2.5 percent of the annual household budget for the lowest-income households, 2.1 percent for the average household and 1.8 percent for the highest-income household. The savings could be even higher if one considers the deterrent effects outside the expenditure category as well as the positive effects of a robust competition culture.

The proportionally greater impact on lower-income households we observe is not uniformly distributed across time, and in some years, the savings from competition law enforcement were greater for the highest-income households than the lowest-income households. These differences in the distribution of savings to households across years can in part be explained by the enforcement tool applied; the sectors in which enforcement action is targeted; the enforcement body; and the volume of enforcement actions undertaken.

Given the focus of U.K. competition authorities and sectoral regulators over the past decade on how competition law can affect those on the lowest incomes, our results offer several insights about the interaction between competition law and household inequality.

First, our analysis illustrates that competition law enforcement has generally had a progressive impact over the entire period examined; it saved poorer households more money as a proportion of their household budgets than richer households. Importantly, we note that this result is not inevitable and enforcement agency choices about which products and sectors to investigate can have distributive consequences. As one would intuitively expect, the action against the private school cartel generated little savings for households on average or lowest incomes, while actions involving basic food products (milk, eggs, and supermarkets) had a wider impact.

Second, our analysis shows the varying effects generated by different enforcement tools. Notably, market investigations were shown to generate the greatest direct savings for low- and average-income households per case investigated. However, because they are assumed to have small deterrent effects, they generated considerably lower combined savings to these households. From a purely distributive perspective, our analysis suggests that directing resources toward market investigations or potential abuses of dominance in the food, housing, and communications sectors is likely to yield the greatest direct benefit to those on the lowest incomes.

A third insight is that, again from a purely distributive perspective, the concurrency arrangements that allow multiple sectoral regulators to apply competition law has had a beneficial effect for those on the lowest incomes. U.K. sectoral regulators generated the greatest combined savings for low- and average-income households per product investigated.

Fourth, our analysis shows that there are important differences between the magnitude of the estimates of the direct savings and the combined savings (which account for deterrent effects) of

competition law enforcement. These differences are not trivial and could influence the choices agencies make about which tools to use. More generally, we note that while it is standard practice for competition authorities to only calculate the direct savings of their activities, the assumptions that underlie these calculations are very conservative and result in low estimates of direct savings. We further note that the exclusion of the deterrent effects of competition law (which is widely accepted and understood by experts) risks creating a distorted image of the household savings and beneficial effects generated by competition law enforcement. The low figures could have wider adverse consequences in terms of public legitimacy and distort governmental budgetary decisions.

Finally, our analysis shows how competition law can be used in a more structured, transparent, and systematic way to address concerns about increasing inequality by incorporating data on actual household expenditure patterns into agency decisions about case prioritization. Note, for example, that our estimates of the average household combined savings generated from competition law enforcement are equivalent in scale to the annual level of inflation experienced over the 15-year period under consideration, and for lower-income households, the average saving of up to 2.5 percent was higher than the average inflation rate of 2.1 percent. This suggests that competition law can be deployed effectively alongside other policy tools—such as Central Bank inflation targets—in protecting consumers from higher prices of goods and services and can have the effect of offsetting the impacts of higher prices on households.⁴⁶

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REFERENCES

- Advani, A., Bangham, G., Leslie, J. 2020. The UK's Wealth Distribution and Characteristics of High-Wealth Households, *Wealth Tax Commission Evidence Paper No.1*.
- Brewer, M., Gardiner, L. 2020. The Initial Impact of COVID-19 and Policy Responses on Household Incomes, *Oxford Review of Economic Policy*, 36(Supplement_1): S187–S199. <https://doi.org/10.1093/oxrep/graa024>.
- Comanor, W.S., Smiley, R.H. 1975. Monopoly and the Distribution of Wealth, *The Quarterly Journal of Economics*, 89(2): 177.
- Competition and Markets Authority. 2015a. 'Understanding Consumers on Low Incomes' CMA 46. 10 July 2015.
- Competition and Markets Authority. 2015b. *CMA Impact Assessment 2014/15*, CMA, 47.
- Competition and Markets Authority. 2016. *CMA Impact Assessment 2015/16*.
- Competition and Markets Authority. 2017a. *The Deterrent Effect of Competition Authorities' Work. Literature Review*. 7 September 2017.
- Competition and Markets Authority. 2017b. *CMA Impact Assessment 2016/17*, CMA, 69.
- Competition and Markets Authority. 2018a. *Tackling the Loyalty Penalty: Response to a Super-Complaint Made by Citizens Advice on 28 September 2018*. 19 December 2018.
- Competition and Markets Authority. 2018b. *CMA Impact Assessment 2017/18*, CMA, 91.
- Competition and Markets Authority. 2018c. *Competition Law Research, 2018: A Report by ICM on Behalf of the Competition And Markets Authority*.
- Competition and Markets Authority. 2019. *CMA Impact Assessment 2018/19*, CMA, 110.
- Competition and Markets Authority. 2020. *CMA Impact Assessment 2019/20*, CMA, 121.
- Competition Commission 2006. Annual Report And Accounts 2005/2006, HC, 1295.
- Competition Commission 2007. Annual Report And Accounts 2006/2007, HC, 603.
- Competition Commission 2008. Annual Report And Accounts 2007/2008, HC, 658.
- Competition Commission 2009. Annual Report And Accounts 2008/2009, HC, 613.

⁴⁶ In the United Kingdom, the Bank of England is set an inflation target of 2%.

- Competition Commission 2010. Annual Report And Accounts 2009/2010, *HC*, **183**.
- Competition Commission 2011. Annual Report And Accounts 2010/2011, *HC*, **1098**.
- Competition Commission 2012. Annual Report And Accounts 2011/2012, *HC*, **368**.
- Competition Commission 2013. Annual Report And Accounts 2012/2013, *HC*, **466**.
- Competition Commission 2014. Annual Report And Accounts 2013/2014, *HC*, **94**.
- Creeedy, J., Dixon, R. 1998. The Relative Burden of Monopoly on Households with Different Incomes, *Economica*, **65**(258): 285–93.
- Davies, S. 2012. A Survey of the Approaches and Methods Used to Assess the Economic Effects of a Competition Authority's Work, *Swedish Competition Authority*.
- Davies, S.W., Ormosi, P.L. 2012. A Comparative Assessment of Methodologies Used to Evaluate Competition Policy, *Journal of Competition Law and Economics*, **8**(4): 769–803.
- Davies, S.W., & Ormosi, P.L. 2013. *The Impact of Competition Policy: What are the Known Unknowns*. Working Paper series. University of East Anglia, Centre for Competition Policy (CCP) 2013-07.
- Delgado, J., Otero, H., Pérez-Asenjo, E. 2016. Assessment of Antitrust Agencies' Impact and Performance: An Analytical Framework, *Journal of Antitrust Enforcement*, **4**(2): 323–44.
- Department of Business, Innovation and Skills (BIS). 2011. *A Competition Regime for Growth: A Consultation on Options for Regulatory Reform*. March 2011.
- Department of Justice. 2021. *Antitrust Division: Congressional Submission FY2021 Performance Budget*.
- Dierx, A., Ilzkovitz, F., Pataracchia, B., Ratto, M., Thum-Thysen, A., Varga, J. 2017. 6. Distributional Macroeconomic Effects of the European Union Competition Policy: A General Equilibrium Analysis. In *A Step Ahead: Competition Policy for Shared Prosperity and Inclusive Growth*.
- Ennis, S.F., Gonzaga, P., Pike, C. 2019. Inequality: A Hidden Cost of Market Power, *Oxford Review of Economic Policy*, **35**(3): 518–49.
- European Commission. 2015. *Ex-Post Economic Evaluation of Competition Policy Enforcement: A Review of the Literature*. July 2015.
- European Commission. 2019. *Annual Activity Report, 2019: DG Competition*.
- Ezrachi, A. 2017. Sponge, *Journal of Antitrust Enforcement*, **5**(1): 49–75.
- Ezrachi, A., Zac, A., Decker, C. 2022. The Effects of Competition Law on Inequality—Incidental by-product or a Path for Societal Change? *Journal of Antitrust Enforcement*, 1–27. <https://doi.org/10.1093/jaenfo/jnac011>
- Federal Trade Commission. 2021. *Federal Trade Commission: Congressional Budget Justification: Fiscal Year 2022*.
- Financial Capability Strategy. 2018. *2018 Adult Financial Capability Survey*.
- Ganglmair, B., Kann, A., Tsanko, I. 2021. Markups for Consumers, *Jahrbücher für Nationalökonomie und Statistik*.
- Han, M., Pyun, J.H. 2021. Markups and Income Inequality: Causal links, 1975–2011, *Journal of Comparative Economics*, **49**(2): 290–312.
- Hausman, J., Leibtag, E. 2007. Consumer Benefits from Increased Competition in Shopping Outlets: Measuring the Effect of Wal-Mart, *Journal of Applied Econometrics*, **22**(7): 1157–77.
- House of Commons. 2021. Poverty in the UK: Statistics. Briefing Paper Number 7096. 31 March 2021.
- Khan, L.M., Vaheesan, S. 2017. Market Power and Inequality: The Antitrust Counterrevolution and Its Discontents, *Harv. L. & Pol'y Rev*, **11**, 60.
- OECD. 2005. *Evaluation of the Actions and Resources of the Competition Authorities*.
- OECD. 2016. *Reference Guide on Ex-Post Evaluation of Competition Agencies' Enforcement Decisions*. April 2016.
- Office of Communications (Ofcom) 2010. Competition Law and the Communications Sector. In *Speech by Ed Richards to the UCL Jevons Institute for Competition Law and Economics Annual Colloquium*, 13 July 2010.
- Office of Fair Trading 2007. Positive Impact 06/07: Consumer Benefits from Competition Enforcement, Merger Control, and Scam Busting, *OFT*, **928**.
- Office of Fair Trading 2008a. Approach to Calculating Direct Benefit to Consumers, *OFT995*.
- Office of Fair Trading 2008b. Positive Impact 07/08: Consumer Benefits from Competition Enforcement, Merger Control, Market Studies and Market Investigation References, and Scam Busting, *OFT*, **1007**.
- Office of Fair Trading 2009. Positive Impact 08/09: Consumer Benefits from the OFT's work, *OFT*, **1102**.
- Office of Fair Trading 2010a. A Guide to OFT's Impact Estimation Methods, *OFT 1250*, (July 2010).
- Office of Fair Trading. 2010b. *A Review of OFT's Impact Estimation Methods: Report by Professor Stephen Davies*.
- Office of Fair Trading. 2010c. *Markets and Households on Low Incomes' A Report by Europe Economics and New Policy Institute*. September 2010.

- Office of Fair Trading 2010d. Positive Impact 09/10: Consumer Benefits from the OFT's Work, *OFT*, **1251**.
- Office of Fair Trading 2011. Positive Impact 10/11: Consumer Benefits from the OFT's Work, *OFT*, **1354**.
- Office of Fair Trading 2012. Positive Impact 11/12: Consumer Benefits from the OFT's Work, *OFT*, **1428**.
- Office of Fair Trading 2013. Positive Impact 12/13: Consumer Benefits from the OFT's Work, *OFT*, **1493**.
- Office of Fair Trading 2014. Positive Impact 13/14: Consumer Benefits from the OFT's Work, *OFT*, **1532**.
- Office of National Statistics. 2006a to 2020 *Detailed Household Expenditure by Gross Income Decile Group*. Available at <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/datasets/detailedhouseholdexpenditurebygrossincomedecilegroupuktablea6> [Last accessed 3 November].
- Office of National Statistics. 2006c to 2020. *Living Costs and Food Survey (LCF)*. Available at <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/methodologies/livingcostsandfoodssurvey> > [Last accessed 3 November].
- Office of National Statistics. 2020. 'National Balance Sheet Estimates for the UK:2020' *Statistical Bulletin*. 1 December 2020.
- Ofgem. 2020. *Assessing the Distributional Impacts of Economic Regulation*. May 2020.
- Social Metrics Commission. 2020. *Measuring Poverty 2020*.
- The Money Charity. 2018. *THE MONEY STATS – Almost 10m Households in the UK Have No Savings Whatsoever*. 18 April 2018. Available at: <https://themoneycharity.org.uk/money-stats-almost-10m-with-no-savings/> [Last accessed 3 November].
- Urzúa, C.M. 2013. Distributive and Regional Effects Of Monopoly Power, *Economía mexicana. Nueva época*, **22**(2): 279–95.
- World Bank 2017. In *A Step Ahead: Competition Policy for Shared Prosperity and Inclusive Growth*, Licetti M.M., Pop G., Nyman S., Gomez T.P.B. (eds). World Bank Publications.