Appendix R: fees in the adtech stack

Introduction

1.   As we discuss in Appendix M and Appendix Z, many advertisers and publishers – such as websites and apps – are concerned about the lack of transparency around fees charged by intermediaries who operate within the adtech supply chain. There are particular concerns that the lack of transparency results in adtech fees that are higher than they otherwise would be and that this can result in increased prices for advertisers and/or lower revenues for publishers.

2.   There have been very few empirical studies of fees within the adtech supply chain, primarily because of the difficulty of obtaining data on fees charged by adtech intermediaries. In this section we present an analysis of fees within the adtech stack based on extensive data sourced from all of the major adtech intermediaries who supply open display ads which are seen by UK users.

3.   When digital display advertising is sold and purchased through the open display channel, there are a number or fees that are levied on the initial advertisers' expenditure by the various intermediaries that are involved in the sale and purchase of the advertising inventory before it reaches a content publisher. In some cases, these fees are levied as a percentage deduction or commission from the overall expenditure, whereas in other cases they are levied as a specific charge. These fees are sometimes referred to as the 'adtech tax' or 'take rate'.

4.   As we explain in Appendix M, there are a number of different routes across the intermediated supply chain that advertising expenditure can follow. The exact number and scale of the fees will therefore depend on the number and types of intermediaries that are involved in the sale or purchase of advertising inventory, as well as the types of services that publishers and advertisers purchase from these intermediaries. The fees will generally include some or all of the following:

   • media agency/trading desk fees – fees associated with the planning and execution of digital ad campaigns on behalf of advertisers;

   • advertiser ad server fees – fees associated with the delivery and monitoring of ads by advertisers;

   • demand-side/DSP fees – fees associated with the purchasing of digital display advertising on behalf of advertisers or media agencies; services provided by demand-side intermediaries include provision of the

technology platform to make the purchase, audience targeting and bid optimisation;

- supply-side/SSP fees – fees associated with the sale of digital advertising on behalf of publishers, with services including provision of the technology platform and ad exchange services;

- publisher ad server fees – fees associated with the final selection of the ad to be displayed on a website or app and delivery of the ad creative to the website or app;

- targeting data fees – many advertisers and, to a lesser extent, publishers purchase data from third-party data providers for the purpose of achieving better targeted advertising; and

- ancillary services fees – fees for services such as ad verification and attribution.

5. In the sections below, we first present our analysis of the take rate by Google adtech intermediaries and then present the analysis of the take rate across the wider adtech supply chain. Finally, we present a financial analysis of the share of revenues that Google and Facebook pass to publishers when acting as an intermediary on behalf of publishers.

Google take rate

Overall Google take rate

6. We first present our analysis of the take rate of Google's main advertiser and publisher-facing intermediaries:

- Google Ads – DSP/Ad Network;

- DV 360 – DSP;

- Google Ad Manager (Authorised Buyers/AdX) – SSP;

- Google Ad Sense – SSP/Ad Network; and

- Google AdMob – SSP/Ad Network.

7. Google Ads and DV360 are Google's advertiser-facing intermediaries. The advertiser-facing intermediaries facilitate the purchasing of digital advertising by buyers such as advertisers or media agencies. Google Ad Manager, Google Ad Sense and Google AdMob are Google's publisher-facing

intermediaries and they facilitate the sale of digital advertising on behalf of publishers.[1] In some cases Google will provide both the advertiser and publisher-facing intermediaries involved in the purchase and sale of advertising inventory, whereas in other cases Google will provide only one of advertiser or publisher-facing intermediation, with the other being provided by a third-party intermediary. Google take rate is the difference between the amount paid into Google adtech intermediaries and the amount paid out of them.

8. The take rate differs depending on which Google intermediaries are used by advertisers and publishers; therefore, we cannot report a single overall take rate for Google. Instead we report estimates of the Google take rate for different combinations of Google intermediaries used by publishers and advertisers. In Figure R.1 we set out an overview of the different combinations of Google intermediaries that can be used and the possible payments in and out of these. We use this as our framework to estimate the various Google take rates:

    • Where Google provides both advertiser and publisher-facing intermediation then the Google take rate will be the difference between the amount paid into the Google advertiser-facing intermediary and the amount paid out of the Google publisher-facing intermediary.

    • Where Google provides only advertiser-facing intermediation then the Google take rate will be the difference between amount paid into the Google advertiser-facing intermediary and the amount paid to a third-party publisher-facing intermediary.

    • Where Google provides only publisher-facing intermediation then the Google take rate will be the difference between the amount paid into the Google publisher-facing intermediary by a third-party intermediary and the amount paid out of the Google publisher-facing intermediary.

9. Google publisher-facing intermediaries charge on the basis of a revenue share with publishers, whereby they keep a proportion of the advertising expenditure that is received by the platform based on the closing price of the auction held by each product. The advertiser-facing intermediaries charge in a different way. DV360 charges a platform fee and it also levies some charges on behalf of third parties (mainly for data or audience segments – although these fees are not retained by Google). Google Ads uses an algorithm to

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[1] Other Google intermediaries – advertiser ad serves and publisher ad server – are involved in the process of placing display advertising on a publisher website. We do not consider these in our analysis of Google's overall adtech take, as they constitute a very small proportion of the overall take rate.

determine how to bid optimally into the AdX auction and other exchanges in order to obtain a reasonable rate of return for advertisers and it retains the difference between advertiser payments and the bid it submits to the exchange.

Figure R.1: Simplified overview of take by Google adtech intermediaries
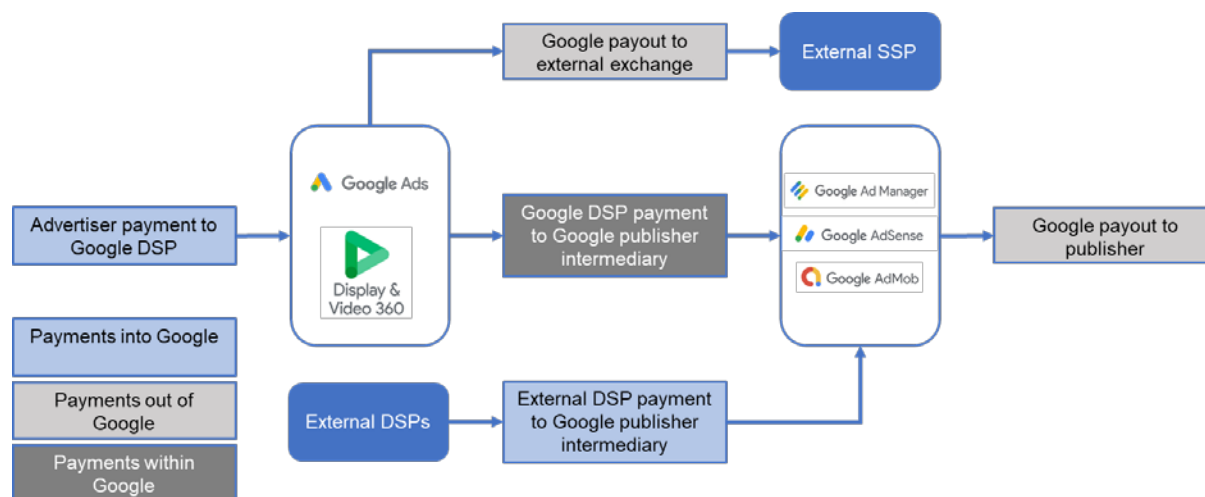
Source: CMA market analysis.

10. We draw on four different data sources to estimate alternative, but complementary, estimates of the Google take rates, drawn from different Google systems and covering different time periods. This enables us sense check our findings, rather than relying on a single method. The data sources are as follows (see Table R.1 for more detail):

- Google aggregated 'market' data – Google reported market data for 2019 for all impressions delivered to UK-based users based on extracts from its systems;

- Google financial data – unaudited Google reported financial data for all impressions delivered to UK-based users for 2018;

- Google RCT impression-level data sample – limited sample of impressions used by Google for use in a randomised control trial to estimate the change in publisher revenue when cookies are tuned off (see Appendix F for more detail) from the period June 21 – September 24, 2019;

- Google impression-level sample extracted for the CMA – all queries from Google Ad Manager web traffic in the period from 8 to 15 March 2020 (see the annex to this appendix for more details).

Table R.1: Overview of data sources used to estimate Google take rates

	Google aggregated 'market' data	Google financial data	Google RCT data impression-level sample	Google impression-level sample extracted for the CMA
Overview	Google reported market data for all impressions delivered to UK-based users based on extracts from its systems	Google reported financial data for all impression delivered to UK-based users	Limited sample of impressions used by Google for use in a randomised control trial to estimate the change in publisher revenue when cookies are tuned off (see Appendix F for more detail)	All Queries from Google Ad Manager web traffic in the period from 8 to 15 March 2020 (see the annex to this appendix for more details)
Amount paid in to Google intermediaries	'Value of ads purchased' for advertiser-facing intermediaries 'Value of ads sold' for publisher-facing intermediaries	'Gross revenues raised from advertisers'	**revenue_usd**: A numeric variable showing the actual gross revenue in USD associated with a given impression.	**adv_paid_usd**: Provides the payment in USD made by the advertiser to a Google DSP **adv_paid_3p_fees_usd**: Provides buy-side fees in USD paid by the advertiser that are directly channelled to third parties, for services such as audience lists
Amount paid out of Google intermediaries	'Value of ads purchased' less fees for advertiser-facing intermediaries 'Value of ads sold' less revenue shared with publishers for publisher-facing intermediaries	'Amounts passed onto third-party publishers'	**publisher_payout_usd**: Is the publisher revenue in USD associated with a given impression.	**dsp_paid_usd**: Provides the payment (for all bids) from the relevant advertiser DSP to AdX, net of all buy-side fees. For non-Google DSP winning bids, this variable is equal to the adv_paid_usd **pub_payout_usd**: Provides the bid in USD that is considered in the AdX auction, after all fees (buy-side and sell-side) have been deducted
Sample (time period covered by the data and scope of the data)	All Google impressions for 2019 ([✂]bn depending on service)	All Google UK revenue as reported to the CMA for 2018	Period covered: June 21 – September 24, 2019 Size: [✂] impressions	[✂]bn auctions from the period from 8 to 15 March 2020

Source: CMA analysis of Google submissions.

11. In Table R.2 we present our estimates of Google average take rates by its main advertiser and publisher-facing intermediaries. These estimates represent average take rates over all relevant impressions in each data source. So, for example, in the market data the 'DV 360 only' take rate represents the average Google take across all impressions sold by DV360 and displayed to UK users in 2019. The analysis shows that:

- On the demand side, the Google take rate for DSP services is [5-15%] for DV360 and between [10-20%] for Google Ads. These average take rates are comparable with the average take rate of other DSPs (see Figure R.9).

- Goggle Ad Manager (Authorised Buyers/AdX) operating as an SSP has an average take rate of between [10-20%]. This is similar to the average takes rate of other SSPs (see Figure R.10).

- Ad Sense has an average take rate of [30-40%]. This is similar to the average takes rate of ad networks (see Figure R.11).

- AdMob has an average take rate of [30-40%]. This is similar to the average takes rate of ad networks (see Figure R.11).

12.   The issue of take rates is one we have engaged with Google and other parties on extensively during the course of this study. Shortly before publication of this report Google published some analysis of their take rates, similar to some of the analysis that we have undertaken in this appendix.[2]

Table R.2: Estimated Google take rates

	Google aggregated 'market' data	Google financial data	Google RCT data impression-level sample**	Google impression-level sample extracted for the CMA
DV 360 only	[5%-15%]+third-party fees	N/A	[10-20%]* (includes third party fees)	[5%-15%]+third-party fees
DV 360 + Ad Manager (AdX)	[20%-30%]+third-party fees	N/A	[20%-30%]	20%-30%]+third-party fees
Google Ads only	[10-20%]	N/A	[20%-30%]*	12%
Google Ads + Ad Sense	[30%-40%]	[30-40]%	[30%-40%]	N/A
Google Ads + AdMob	30%-40%]	[30-40]%	N/A	N/A
Google Ads + Ad Manager (AdX)	[30%-40%]	N/A	[20%-30%]	30%
Ad Manager (Authorised Buyers/AdX) only	[10-20%]	[10-20%	[10-20%]	[10-20%]
AdSense only	[30%-40%]	[N/A	[30%-40%]	N/A
AdMob only	[30%-40%]	[N/A	N/A	N/A

* Only when used with external exchange.
** Control group only, note the RCT smaller much smaller than the other sample and therefore estimate may be distorted by relatively small numbers of impression.
† On average across all transactions; however, third-party fees are not charged on all transactions.

Source: CMA analysis of Google data.

'Hidden Fees'

Publisher concerns about 'hidden fees'

13.   A number of advertisers and, in particular, publishers have expressed specific concerns about possible hidden fees charged by Google by exploiting the difference in prices between successive auctions held within the adtech supply chain. Of most concern to publishers and advertisers is the situation when ads are purchased through Google Ads and sold via Google Ad Manager (AdX). As is set out in Figure R.2, Google Ads first runs a second-price auction amongst buyers on the platform before submitting a bid to Google Ad Manager on behalf of the winning buyer. Google Ad Manager then

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[2] Google Ad Manager How our display buying platforms share revenue with publishers.

holds a first-price auction to determine the winning bid. If this winning bid results in an advert being displayed,[3] then Ad Manager will make a pay-out to the publisher on whose site the ad is displayed.

Figure R.2: Simplified overview of Google Ads/Google Ad Manager (AdX) bids and payments
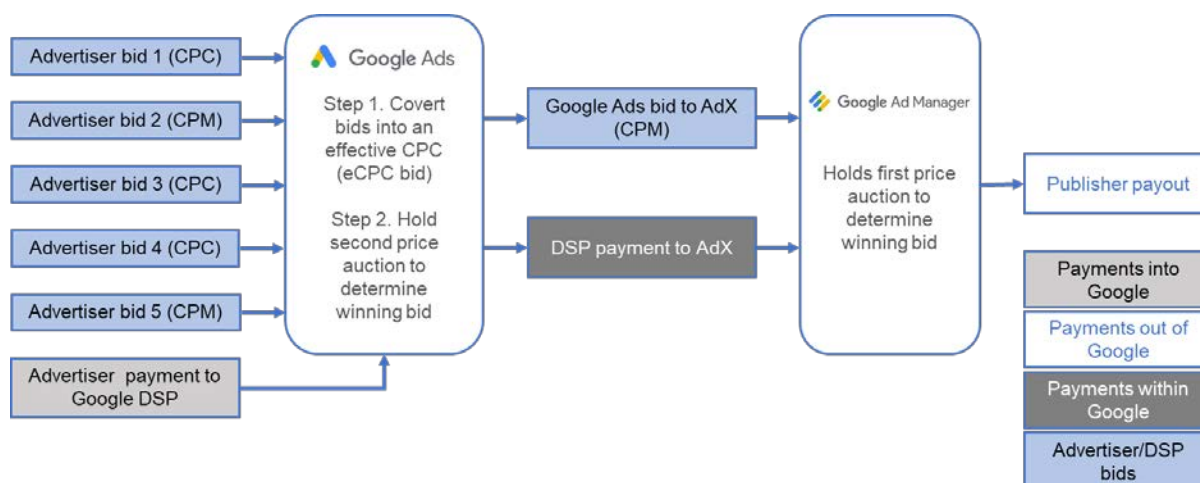
Source: CMA market analysis.

14.   Advertisers and publishers suspect that Google Ads is able to extract 'hidden fees' by exploiting the difference between the clearing price of the Google Ads auction (on which the advertiser payment to Google Ads is based) and the bid required to win the subsequent Google Ad Manager (AdX) auction. The concerns are exacerbated by the fact that neither advertisers nor publishers have historically been provided specifically with any information on the difference between the amount paid to Google Ads by advertisers and the amount that Google Ads in turn pays to Google Ad Manager (AdX) (although publishers can observe the AdX take rate).[4] Google does publish average takes rates for Google Ad Sense,[5] which is often used in conjunction with Google Ads, and where this is the case the Google Ads take rate should be incorporated in the published Ad Sense take rate.

15.   Some publishers have conducted experiments whereby they purchased their own inventory through a combination of Google Ads/AdX and then analysed the difference between what they paid and what they received, and they have shared the results with us. In some cases, these experiments estimated that the size of the Google take rate was very high (circa 70%). However, these experiments have some limitations in that they are unable to exactly match up

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[3] Note that not in all cases will the winning bid in the AdX auction leads to an ad being displayed, as this bid may be compared against bids from other sources – such as header bidding or direct sales – by the publisher ad server before it makes a decision on which ad to serve.
[4] However, shortly before publication of this report Google published some analysis of their Google Ads take rates, similar to some of the analysis that we have undertaken in this appendix, See: Google Ad Manager How our display buying platforms share revenue with publishers.
[5] See: https://support.google.com/adsense/answer/180195?hl=en-GB.

they inventory that they are purchasing though Google Ads with the ads ultimately displayed on the publisher's site.

Analysis of Google take rate when ads are purchased/sold through a combination of Google Ads/Google Ad manager (AdX)

16.   Google Ads, for its part, submits that it uses an algorithm to determine how to bid optimally into the AdX auction and other exchanges in order to obtain a reasonable rate of return for advertisers. It retains the difference between advertiser payments and the bid it submits to the exchange. In effect Google Ads does not charge fees but it instead retains the difference between advertiser payments to it and the bids submitted to exchanges including Google Ad Manager (AdX). However, Google would not classify this as a 'hidden fee' but as its take rate for intermediation services offered by Google Ads.

17.   Google submitted that, over the 12 months to October 2019, the difference between payments received by Google Ads from advertisers and the amounts paid to AdX and third party SSPs equated to [10-20%] of total advertiser spend on the platform.[6] For ads purchased through Google Ads where Google also provides intermediation though Google Ad Manager (AdX), it also charges a 'revenue share associated with publishers'.[7] For 2018, Google reports that the difference between the revenue shared with publishers by Google Ad manager and the value of the inventory sold to advertisers though Google Ads equated to [30-40%] of the value of ads sold through it, and that this difference 'includes both the revenue share associated with advertisers and the revenue share associated with publishers (due to the provision of intermediation through Ad Manager (AdX)).[8]

18.   Some publishers suggested that we could not rely on the aggregated market data reported by Google to accurately assess the Google Ads take rate, but instead should examine detailed impression-level data. Since the publication of our interim report, we have undertaken an analysis of the Google take rates across two impression-level datasets (the details of which are set out in Table R.1 above). The results of our analysis of these datasets (set out in Table R.2 above) show the following:

- The analysis of [✂] billion queries from the period from 8 to 15 March 2020 showed that the average Google take rate relating solely to Google Ads intermediation was 12% on average and when Google Ads was used

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[6] Google submission following a meeting on 28 October 2019.
[7] Google response to RFI dated 10 October 2019.
[8] Google response to RFI dated 10 October 2019.

in connection with Google Ad Manager (AdX) the Google take was 30% on average.

- The analysis of a dataset used by Google for a randomised control trial covering [✂] impressions from the period June 21 to September 24 2019 showed that when Google Ads was used in conjunction with Google Ad Manager (AdX) the Google take was 20%-30% on average (an average take rate relating solely to intermediation by Google Ads cannot be observed from this dataset).

19.   As a cross check on this analysis we have examined the dataset containing queries from 8 to 15 March to see if the Google take rate, when ads are purchased/sold through Google Ads/Google Ad Manager (AdX), varies significantly across the ten large publishers (by number of queries) in the dataset.[9] The results of this analysis are set out in Table R.3 below.

Table R.3: Estimated Google take rates for selected publishers when ads are purchased/sold through Google Ads/AdX

Publisher	Google total take rate	Google Ads take rate
1	[20-30%]	[0-5%]
2	[30-40%]	[10-20%]
3	[20-30%]	[0-5%]
4	[20-30%]	[5-10%]
5	[20-30%]	[5-10%]
6	[20-30%]	[0-5%]
7	[10-20%]	[<0%]
8	[30-40%]	[10-20%]
9	[20-30%]	[0-5%]
10	[20-30%]	[0-5%]

Source: CMA analysis of Google data.

20.   There is considerable variation in the overall Google take rate and Google Ads take rate across publishers. The overall Google take rate ranges between 15% and 35% whilst the Google Ad take rate ranges between -5% and 19%.[10]

21.   Overall these estimates for Google take rates when ads are purchased/sold through Google Ads/Google Ad Manager (AdX) are significantly lower than those suggested by some stakeholders, and broadly in line with what non-Google intermediaries charge for similar services, as our analysis in the next section shows. From the transaction level data, we are able to observe directly what goes into and what comes out of the various Google

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[9] This includes the publishers who conducted the experiment in purchasing their own inventory referred to above. The publishers were selected in order to represent some of the different types of large publisher who sell open display ad through Google Ad Manager.

[10] Given how Google describes how Google Ads bids into AdX auctions (it uses and algorithm to bid optimally and ensure a reasonable rate of return) we would expect there to be variation in the Google Ads margin across publishers. In addition, given Google Ads often sell ad inventory on a CPC basis (so only charges advertisers when and ad is clicked on) but bids into AdX auctions on a CPM basis (so it pays publishers for all ads it wins) a negative Google Ads Margin for some publishers is possible.

intermediaries. Therefore, the analysis of take rates based on this data should not exclude any other potential 'hidden fees' they might charge.

Analysis of winning margins

22. News UK submitted the results of an analysis, commissioned to CRA, of the winning margins in the auction for its inventory. In their report, CRA/News UK submitted that one of the reasons they consider that Google Ads is able to extract significant 'hidden fees' is because it is able to win impressions in the Google Unified Auction (UA) at a small margin above the second price bid (or floor price if there is no other bidder in the auction). This, they submit, is due to a significant informational advantage Google has over other DSPs and/or its superior valuation for the impression (which stems from superior data and IDs) resulting in Google Ads being the only bidder exceeding the floor price.[11]

23. Google Ads, they submit, has an informational advantage over other DSPs as it has access to superior data which allows it to more accurately anticipate when it will be the only bidder exceeding the floor price in the UA compared with other DSPs. CRA/News UK submit that this allows Google Ads to shade its bids in the UA such that the Google Ads winning margin (its winning bid minus the maximum of the second highest bid or floor price) is likely to be systematically lower than that of other DSPs.[12] As a consequence, they consider that Google Ads is able to maximise the difference between the winning bid in the auction that it holds amongst buyers on the platform and the bid that it summits to the UA.

24. As evidence to support these submissions, CRA has compared, for Google Ads and for non-Google DSPs, the winning bid for News UK inventory in the UA to the maximum of the header bidding price[13] and the floor price for the same impression. CRA note that they cannot see the second price in the UA at the same time as the header bidding price and the floor price because they are unable to join up the relevant datasets provided by Google. Their sample consists of 32 daily samples of 20,000 impressions (640,000 impressions in total) from 15 November to 16 December 2019, and 32 daily samples of 20,000 impressions (640,000 impressions in total) from 15 March to 15 April 2020.

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[11] CRA analysis on behalf of UK: Google's transition to UPR: effects on bidding behaviour, last look and rent extraction, May 2020.
[12] The UA is run as a first price auction. As a consequence, it may be optimal for bidders to bid below their valuation for an impression and bid at a level that is just above the price that is required to win the auction (for example the second priced bid or floor price). This is known as bid shading.
[13] The winning price for the impression in the separate header bidding auction run by News UK. Analysis run on News UK impressions for which a header bidding auction has been run before contacting AdX.

25.   The results of the CRA analysis are presented in Figures R.3 and R.4 below. They show that approximately [✂] of the impressions won by Google Ads, its winning bid exceeded the header bidding price or floor price by less than £0.2 CPM. This was the case for only approximately [✂] of impressions won by non-Google DSPs.

Figure R.3: CRA analysis of winning margin for News UK inventory for Google Ads

[✂]

Figure R.4: CRA analysis of winning margin for News UK inventory for non-Google DSPs

[✂]

Source: CRA analysis on behalf of News UK: Google's transition to UPR: effects on bidding behaviour, last look and rent extraction, May 2020.

26.   We have undertaken an analysis of winning margins in the Google impression-level data sample extracted for the CMA (described above). This data set contains data for over [✂] billion queries in the Google UA and includes data on all winning and losing bids, as well as the auction floor price. We calculate the winning margin as the winning bid minus the second ranked price in the auction (the maximum of the second highest bid and floor price). The results of this analysis are presented in Table R.4. The analysis shows that:

- Google Ads had a much lower mean winning margin than all other types of bidder.

- The median winning margin for all types of bidders are very similar (between £[✂]to £[✂]).

- Google Ads median winning margin is very similar to that for non-Google DSPs (£[✂]compared to £[✂]).

- Non-Google exchanges bidding into the Unified Auction through Google's open bidding had a slightly higher median winning margin than Google Ads (£[✂]compared to £[✂]).

- In proportional (winning margin/second ranked bid) terms Google Ads has the both the largest mean and median winning margins of any type of

bidder. This may be because Google Ads typically bids for lower valued inventory.[14]

27.   The results of our analysis show that has Google Ads has a similar, if slightly lower, median winning margin compared with other types of bidder, indicating that the proportion of impressions that Google Ads wins at a relatively small increment above the second ranked price is similar to that for other types of bidder. However, Google Ads has a much lower mean winning margin than other types of bidder, indicating that it wins relatively fewer auctions compared with other bidders with bids that are a relatively large increment above the second ranked price. However, when we convert the winning margin into proportionate terms (winning margin divided by the second ranked bid) then both Google Ads mean and median winning margins are much larger than the mean and median winning margins for all other types of bidder.

28.   In absolute terms – especially when considering the mean – there is some evidence that Google Ads is able to achieve lower winning margins than other types of bidder. However, in proportionate terms its winning margins are much higher than other types of bidders. Overall the evidence does not clearly support Google Ads having a systematic advantage over other bidders.

Table R.4: Winning margins* in the UA by bidder type

	Mean winning margin†	Median winning margin†	Mean margin (% of second-ranked price)	Median margin (% of second-ranked price)
DV360	[✂]	[✂]	[✂]	[✂]
Google Ads	[✂]	[✂]	[✂]	[✂]
Non-Google DSPs	[✂]	[✂]	[✂]	[✂]
Non-Google exchanges (through Open Bidding)	[✂]	[✂]	[✂]	[✂]

* Winning bid minus the second ranked price in the auction (the maximum of the second highest bid and floor price).
† We have multiplied these margins by 1000 to express them in CPM for comparability with CRA analysis.

Source: CMA analysis of Google data.

29.   In Table R.5 below we compare the median winning margin from our analysis with the median winning margin from the CRA/News UK analysis. The comparison shows that:

- Our analysis suggests that the median winning margin for Google Ads is somewhat lower than the median Google Ads winning margin observed by CRA (£[✂]compared with £[✂]).

- Our analysis suggests a much lower median winning margin for non-Google DSPs than the median Google Ads winning margin observed by

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[14] In Appendix C we present analysis that shows that the average price of ads purchased by Google Ads is significantly lower than the average price of ads purchased by all other buyers.

CRA (£[✂]compared with £[✂]) as well as for DV360 (£[✂]compared with £[✂]) and Non-Google exchanges (£[✂]compared with £[✂]).

Table R.5: Comparison of median winning margins from the CRA/News UK and CMA analyses

	CRA analysis of News UK data	CMA analysis of Google data
Google Ads	[✂]	[✂]
Non-Google DSP	[✂]	[✂]
DV360	[✂]	[✂]
Non-Google Exchange	[✂]	[✂]

Source: CMA analysis of Google data and CRA analysis on behalf of News UK: Google's transition to UPR: effects on bidding behaviour, last look and rent extraction, May 2020.

30.   The comparison between our analysis and that undertaken by CRA/News UK shows that we both have obtained similar estimates for the winning margin for bids made by Google Ads. However, the CRA analysis indicates that the winning margin for bids made by non-Google DSP (and other types of bidder) is much higher than our analysis does. This apparent disparity may be down to differences in samples (we observe bids across all publishers, whereas the CRA/News UK analysis just looks at bid for News UK inventory) and methodologies (we are able to observe the second highest bid in the UA, whereas the CRA/News UK are not) employed by the two pieces of analysis.

31.   The fact that the CRA/News UK cannot observe the second highest bid in the UA means that their analysis may systematically overestimate the winning margin for more competitive auctions. This is because, if there are more bidders in the auction, then the second highest bid in UA is more likely to be higher than the header bidding or floor price. Non-Google DSPs typically bid in more competitive auctions than Google Ads[15] and, therefore, it is perhaps not surprising that the CRA/News UK analysis shows a higher margin for non-Google DSPs than our analysis does.

Analysis of Google financial data for revenues it passes to publishers when acting as an intermediary on behalf of publishers

32.   We also requested 2018 revenues and associated outpayments (ie revenues shared with publishers) in relation to UK open display advertising from both Google based on financial accounting data.

33.   Where Google provides the whole of the adtech stack from taking advertisers' money through to sharing digital advertising revenues with publishers, then the proportion that such outpayments comprise of revenues earned should, in principle, provide an estimate of the level of the adtech take rate. Analysis of

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[15] Our analysis of the Google data shows that Google Ads wins a higher number of non-competitive auctions (auctions where there is only one eligible bidder above the floor price) compared to other types of bidder. For, example of the impressions won by Google Ads 50%-60% were in non-competitive auctions, whereas of the impressions won by non-Google DSPs 20%-30% were in non-competitive auctions.

this data id the basis for our estimate of the Google take rates using financial data set out in Table R2.

34.   We have included in this analysis the advertising revenues Google raises when YouTube content providers satisfying Google's qualifying conditions then opt to monetise their content. In this context Google is acting as an intermediary on behalf of YouTube content providers.

35.   Based on this analysis, small publishers using Google's AdSense for Content product to monetise their advertising inventory retain on average [60-70]% of the revenues earned by Google from advertisers. This proportion rises to [70-80]% for large publishers using Google Ad Manager. The figure for publishers of apps is [60-70]% and [60-70]% for those YouTube content providers monetising their content.

36.   The analysis above, however, does not fully reflect the extent to which Google's publisher customers may be incurring adtech fees for the following reasons:

- Firstly, the analysis reflects Google's revenues and outpayments: if other intermediaries are involved at some point in the sales / purchase chain and charge for services provided, then there will be some missing charges. An example of such an intermediary would be a non-Google DSP which an advertiser uses but which in turn uses a Google SSP to purchase inventory.

- Secondly, whilst Google handles all the monies it receives from advertisers to purchase inventory, it only shows as revenue the full value received from advertisers where it also sets the price for that inventory.[16] We are aware of two situations where Google does not set the price and therefore only shows the commission it receives for the service it has provided within its revenues and not the full advertiser expenditure:

    — where Google facilitates a 'direct deal' between advertisers and publishers over its programmatic platform; here advertisers and publishers establish the price as part of their direct negotiations; and

    — where Google's DSP is used by its advertiser clients to handle a particular campaign and that DSP then transacts with non-Google DSPs and SSPs to purchase advertising inventory. In these cases, it

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[16] This approach reflects the standard approach to accounting for revenues reflecting the distinction that where a firm is acting as an agent, rather than as a principal, it only reports as revenue the commission it earns.

will be a non-Google SSP who will be setting the price where the inventory in question is sold by auction.

- Thirdly, non-Google firms may charge for some essential adtech services (eg advertiser or publisher ad serving) directly to advertisers or publishers, rather than their fees being deducted from amounts passing down the value chain to Google's SSP publisher customers.

37. In the second case outlined in the above paragraph Google will only report its commission within revenues and no amount will be included in outpayments (because the commission is net of outpayments). The first and third cases reflect services not provided by Google and therefore will not be reflected in Google's numbers at all.

38. The first and third reasons set out above will lead the percentages to understate the level of the take rate. The impact of the second reason is directionally unclear.[17]

39. This means that, depending on the significance of these type of transactions for the publisher groups identified in the tables, the proportions highlighted will understate the extent of the take rate.

Take rates across the wider adtech supply chain

Summary of external studies

40. There have been very few empirical studies of adtech take rates in the UK or worldwide. The main reason for this is the difficulty of obtaining data. We provide a brief overview of the most relevant studies below.

ISBA/PWC study[18]

41. This study, published in 2020 by ISBA and PWC, examined impression-level transaction data for 31 million impressions across 15 advertisers, 12 agencies, five DSPs, six SSPs and 12 publishers, representing approximately £100 million of UK programmatic ad spend. The study sought to match transactions across the various level of the programmatic supply chain and then analyse the adtech take at each level. The key results are set out in Figure R.5.

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[17] Where only commission is reported, outpayments to publishers would be reported as zero whereas revenues would include the commission earned. As we don't know what the proportion that these commission only figures are of ad spend, it is not possible to determine the impact.
[18] ISBA Programmatic Supply Chain Transparency Study May 2020.

42. The study found that on average publishers receive 51% of initial advertiser expenditure, with 49% of the initial spend absorbed by various intermediaries prior to reaching the publisher. Of this 49%, 15% was classified as an 'unknown delta', which could not be attributed to any intermediary. Given the ISBA/PWC methodology of matching transaction log data from different intermediaries, advertisers and publishers along the supply chain, the unknown delta is likely to occur as a result of instances when they are unable to match what was paid by one party with what was received by another. An example of this would be when, for a given impression, the payment made by a DSP is recorded in the log data as being higher than the payment received by an SSP. The published executive summary of the study suggests this unknown delta could 'reflect a combination of: limitations in data sets, necessitating occasional estimations; DSP or SSP fees that aren't visible in the study data; post-auction bid shading; post-auction financing arrangements or other trading deals; foreign exchange translations; inventory reselling between tech vendors; or other unknown factors.[19]

Figure R.5: ISBA/PWC analysis of take rates across the adtech supply chain
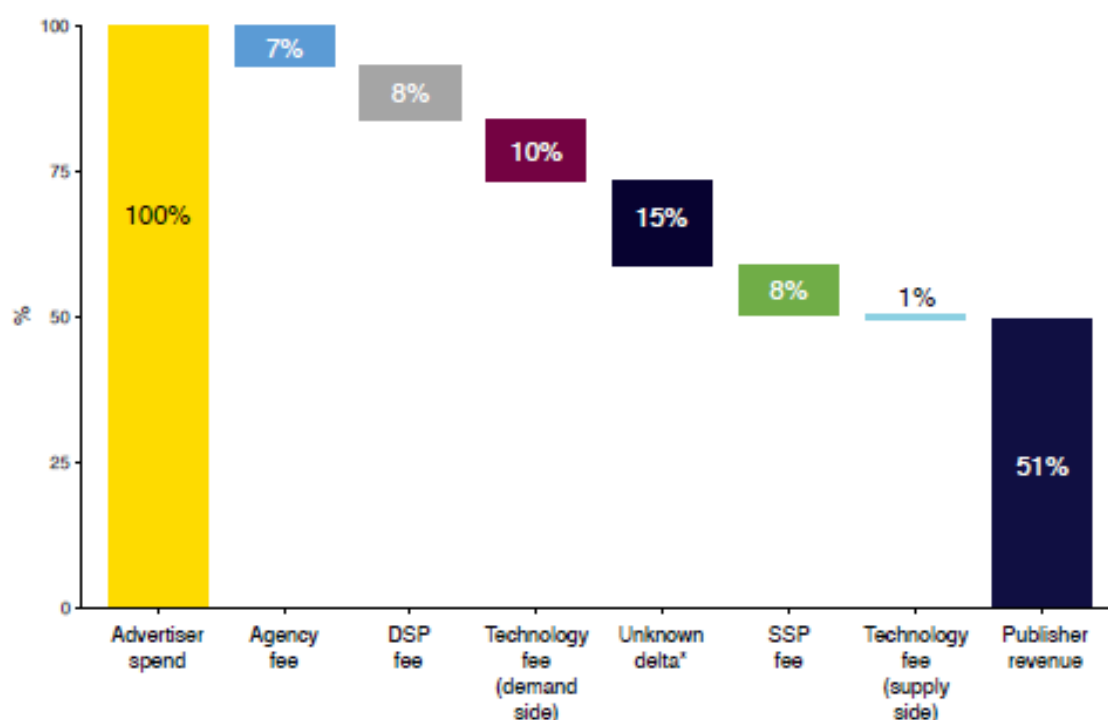

Source: ISBA Programmatic Supply Chain Transparency Study.

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[19] ISBA Programmatic Supply Chain Transparency Study May 2020, page 8.

Plum Report[20]

43.	In this report, commissioned by the Department of Media, Culture and Sport, Plum and published in 2019 developed indicative estimates of the share of spend taken by intermediaries based on feedback from a small number of industry experts. They asked these experts to estimate the rates charged by each type of intermediaries, including a range and a mid-point, in certain scenarios. The study found that publisher revise £0.62 out of every £1 spent by advertisers. More detailed findings in relation to display ads sold through open auctions are set out in Figure R.6 below.

Figure R.6: Plum analysis of take rates across the adtech supply chain
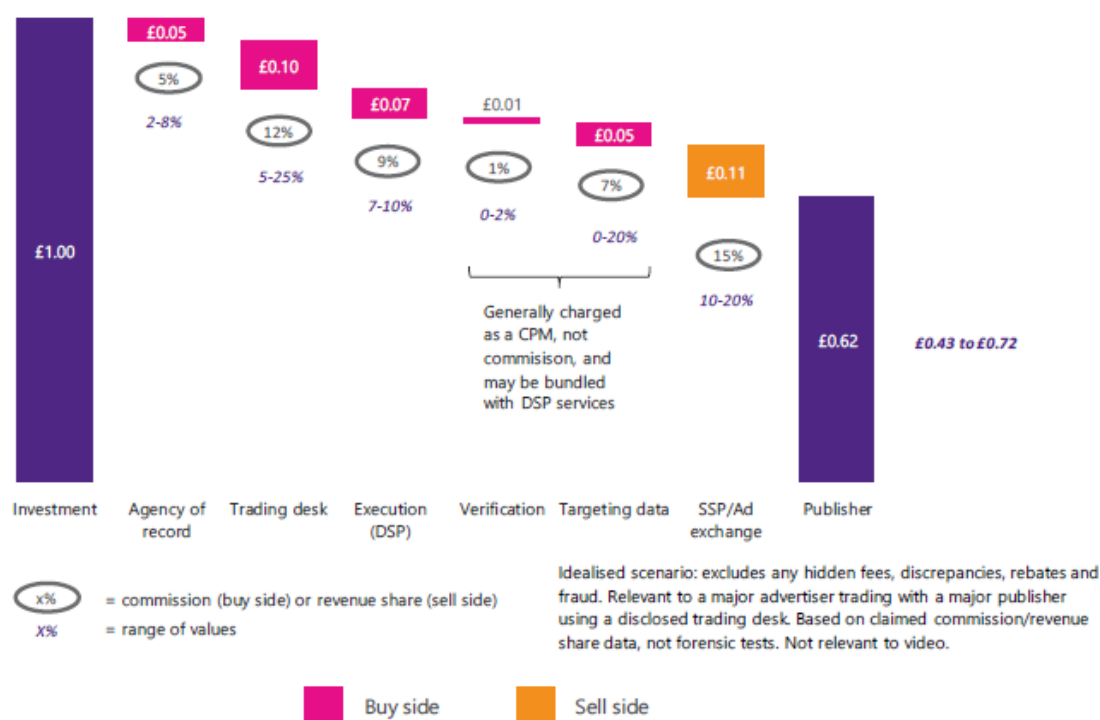
Source: Online advertising in the UK, Plum consulting January 2019.

ANA analysis[21]

44.	This study, commissioned by the US Association of National Advertisers (ANA), analysed 6.6 billion impressions ($36.4 billion spend) over 445 campaigns for 7 different advertisers in 2017. As the source of the data used in the study was DSPs, the study only analyses buy side-fees (fees up to and including DSP charges). The ANA study found that, on average, buy-side

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[20] Online advertising in the UK – Plum Consulting (2019).
[21] ANA, Programmatic: Seeing through the financial fog (2017).

charges equated to 28% of overall advertising expenditure. More detailed results from this study are set out on Figure R.7 below.

Figure R.7: ANA analysis of take rates across the Adtech supply chain

Source: ANA, Programmatic: Seeing through the financial fog.
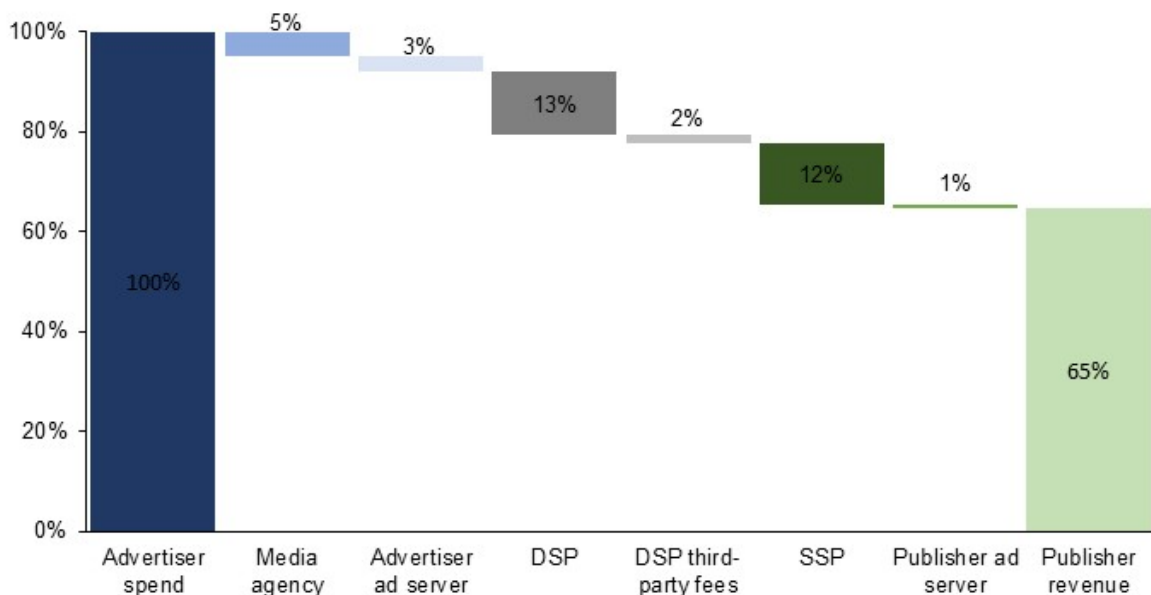
Our analysis of the adtech take

Overview

45. We have received data about fees/charges from most of the major intermediaries that operate in the UK. These intermediaries reported to us aggregated data for 2019 on all fees they charged in relation to the provision of intermediation services for open display advertising, as well as the amount of open display advertising expenditure that passed through them. We used the data to estimate the average take rate by intermediaries at various levels of the open display advertising supply chain as a percentage of the initial expenditure by advertisers. The results of this analysis are presented in Figure R.8 below. We provide more details about the data and how we calculated our estimates in the subsequent sections of this appendix.

46. The results of our analysis show that on average publishers receive around 65% of initial advertising spending. However, in practice, publishers' share may be lower than this average because:

- There may be additional charges by categories of intermediaries other than those covered by our analysis. Most notably, our analysis does not

cover fees charged directly by trading desks[22] or by third-party providers of data or advertising verification services.[23]

- Where ads are sold through Google Open Bidding there will be an additional charge imposed by Google, typically 5% of the SSP's bid.[24]

- A number of categories that are suggested by the ISBA/PWC study as making up the 'unknown delta' may not be the fees/charges data reported to us, such as, for example, any measurement error or post auction bid shading.[25]

- Our estimates do not take into account any revenue lost to publishers through digital ad fraud.

Figure R.8: CMA analysis of take rates across the open display supply chain (2019)

Source: CMA analysis of intermediary data.

Comparison with other studies

47.   Comparisons between our estimates for the take rate for the adtech supply chain and the estimates from the external studies that we reviewed above should be made with caution as those studies employ very different methodologies and use very different samples. However, we can observe that

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[22] Although we do not specifically isolate trading desk costs, our estimate for DSP charges will capture some element of trading desk charges, as many of these offer these kinds of 'managed services'.
[23] In some case third-party data and ad verification services are purchased and paid through DSPs. Where this is the case then the charges for these services will be included in the DSP element of our analysis.
[24] However, as we set out in Appendix C, open bidding currently only accounts for a relatively small number of purchases of advertising inventory – hence we have not included this in our analysis of the average take rate.
[25] This is the practice of submitting to a subsequent auction a bid that is lower than the auction clearing price.

the results of our analysis are broadly comparable with those produced by the external studies:

- The ISBA/PWC study finds that publishers receive on average a much lower percentage of advertising expenditure (51% compared to 65%). Where they have identified values for discrete categories of fees (eg DSP fees) the ISBA/PWC estimates are similar to those we have obtained for corresponding categories. The overall difference in the estimates of the adtech take is almost entirely explained by the so-called 'unknown delta'. As we note above, ISBA/PWC observe that there is a degree of measurement error in their results; however, there are some categories suggested by the ISBA/PWC study as making up the 'unknown delta' that may not be reported in the fees/charges data provided to us. At the moment, it is not possible to specify exactly what makes up this 'unknown delta' and therefore what is driving the differences between our results and the ISBA/PWC results.

- The Plum study finds that publishers receive a similar amount of revenue on average (62% compared to 65%). We note that the Plum study includes an additional element of the supply chain in its analysis – trading desks. However, our definition of DSP charges is wider than that used by Plum (DSP-Execution charges), as it includes all charges for trading-desk-type services where these are provided by the DSP. Therefore, any discrepancy between our estimates and the Plum estimates as a result of our not specifically identifying trading desk charges will be limited.

- The ANA study found that, on average, buy-side charges equated to 28% of overall advertising expenditure. Our estimate was that buy-side fees were equivalent to 23% of overall advertising expenditure. One possible explanation for the difference in the estimates is that the ANA estimate includes an element equivalent to 9% of advertising spend for data fees, some of which will be charged by third-party data providers. As we note above, our analysis does not cover fees charged by third-party providers unless these fees are charged via a DSP.

Comparison with financial trading costs

48.   Arete Research, in its response to our interim report, submitted that the size of the adtech take is high when compared to the cost of trading in financial securities:

> Whatever estimates are made of the "ad tech tax" […], it is orders of magnitude more than sub-1% total trading costs in more transparent financial markets […]. Ad buying platforms (DSPs)

have 15-20% take rates (depending on "data fees"), with another ~20% taken by SSPs/ad networks.[26]

Arete Research also notes that there are some differences between open display and financial markets: 'NASDAQ + NYSE trade 8bn shares/day, vs 100B+ traded on RTB [open display] exchanges and that value of individual RTB trades is 100X+ on financial markets.'[27]

49. Adtech fees are much larger (as a percentage of the value of advertising inventory) than financial trading costs (as a percentage of the values of the underlying financial asset being traded).

50. However, it can be challenging to make comparisons of fees across different markets. First, while we understand that the trading costs referenced by Arete are trading execution costs,[28] adtech intermediaries, especially DSPs, typically offer a much wider range of services than basic trade execution – including some like targeting which are potentially value adding – and this is likely to be reflected in the average fees charged. In addition, as Arete Research note, adtech 'trades'[29] are much higher in volume and lower in value than financial trades. On a 'per trade' basis, adtech fees appear to be lower than financial trading execution costs. Based on the Arete assumption that the average value of a financial trade is 100 times the value of an adtech trade[30] and the average adtech take is 35%, adtech fees per trade costs are roughly one third of per trade financial trading costs (assuming a 1% fee rate for trading financial securities).

Media agency fees

51. We received data on the fees charged for open display advertising from five media agencies.[31] Media agencies do not typically charge fees specifically in relation to open display advertising. They typically charge fees to a client for a broad range of services provided, and it is common for these fees to include a fixed element. The data on fees charged for open display advertising provided by these agencies represent estimates based on a number of assumptions and, therefore, our analysis of these fees should be treated with a degree of caution.

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[26] Arete Research's response to our consultation on the Interim Report, Page 10.
[27] Arete Research's response to our consultation on the Interim Report, Page 11.
[28] Costs related to the completion of a buy or sell order for a security.
[29] We are assuming an adtech trade to be a transaction for an individual impression.
[30] In practice this is likely to be a substantial underestimation, as Arete Research is comparing the value of an adtech impression with the value of an individual financial security (in this case a Google share) and most financial securities are traded in bundles that are much larger than a single security. The value of an individual trade in financial securities is likely to be many times that of an individual security.
[31] WPP, IPG, Omnicom, Publicis and Dentsu Aegis.

52.   We have calculated the estimated level of fees charged by media agencies in relation to open display advertising as a percentage of their overall expenditure on open display advertising. The fee estimates range between 4% and 14% of total open display expenditure and the weighted average across all the media agencies is 5%.

Advertiser ad server Fees

53.   We received data on the fees charged for open display advertising from five major advertiser ad servers.[32] Advertiser ad server fees vary depending on the services offered. These services range from a basic service which facilitates the transfer of ad creative to the publisher, to more enhanced services for the management of ads and advanced reporting. Advertiser ad server fees also tend to be higher for video format ads.

54.   Advertiser ad server fees ranged between £0.03 CPM and £0.65 CPM with the weighted average across all advertiser ad servers being £0.05 CPM. This equates to approximately 3% of total media spend.[33]

DSP fees

55.   We have received evidence about fees/charges from 12 major DSPs who operate in the UK.[34] The evidence contains details on how they charge for the services they offer as well as the total amount they charge for these services.

56.   DSPs have reported to us the values of advertising revenue for ads purchased on their platforms, the fees that they charge directly for DSP services and any fees that they charge on behalf of third parties. This data incudes:

- 'Value of ads purchased' – value of advertising revenue for open display ads purchased on their platforms; this includes the media/inventory cost paid to supply side intermediaries and all fees, charges and commissions related to the purchases of this inventory reported to us by the DSP. It should approximate the gross revenue received by the DSP for open display impressions.[35]

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[32] Adfrom, Amazon, Flashtalking, Google, Innovid.
[33] Based on an average estimated CPM of £1.54 across all DSPs (including Google Ads) adjusted upwards based on an estimate of 5% on average of media spend being absorbed by a media agency prior to reaching the DSP.
[34] Google DV360, Amazon, Appnexus, Verizon, Beexwax, Crtieo, DataXu, Quantcast, Adfrom, Adobe, The Trade Desk and MediaMath,
[35] Note in some cases this value was reported net of fees (ie inventory/media cost). Where this was the case, we have added the reported value of fees to the inventory/media cost to get an estimate of advertising revenue.

- 'Direct fees' – fees charged for services provided directly by DSPs for the purchases of open display advertising; these can include some or all of the following (depending on the services offered by, and the charging structure of, the individual DSP):

  - Technology/platform fees, for providing the platform and executing the transactions;

  - Managed services, for more active management and planning of campaigns on behalf of advertisers, akin to trading desks;

  - Enhanced services, such as enhanced optimisation or targeting algorithms/services (eg retargeting), enhanced reporting (eg cross-device or single user identity graph); and

  - Ancillary services, such as viewability reporting, verification service, and the provision of DSP proprietary data.

- 'Third-party fees' – fees charged on behalf of third parties, most commonly on behalf of data providers or verification services.

57.   These fees are typically charged as a percentage of advertisers' media expenditure on the platform and the fees are netted off the expenditure by the advertiser prior to the DSP submitting a bid on behalf of advertisers for media inventory. In addition, it is common for DSPs to also charge for some of the services mentioned above outside of their main percentage spend charge. These additional charges are typically volume-based charges (CPM) and they generally represent a small proportion of the overall charge to advertisers. There are also a couple of atypical charging models amongst DSPs, including one DSP that charges a main fee as a fixed CPM charge (instead of a percentage of media spend) and another whose main fee is charged as a fixed monthly fee (which varies, to some extent, with the volume of bid traffic from an advertiser on the platform). It is common that the overall size of the fees DSPs charge to advertisers will vary with the overall level of an advertiser's spend and this can be based on a standard 'rate-card' or determined by individual negotiation of rebate/discounts with individual advertisers or media agencies.

58.   The overall level of fees charged by DSPs to advertisers depends on the range of services the DSP provides as well as the range of services an advertiser chooses to purchase. At the most basic level, advertisers can purchase 'self-service' DSP services, in which case the DSP essentially provides the technology platform for advertisers to execute the purchase of advertising inventory and little else. However, some DSPs also offer 'managed services', whereby staff from the DSP may offer input into the

planning and optimisation of an ad campaign (so that the DSP is operating in a similar manner to a media agency's trading desk). In addition, many DSPs also offer more enhanced service options such as advanced audience targeting, bid/expenditure optimisation, the ability to track ad viewability, frequency capping and the ability to manage ad campaigns across domains, formats and devices.

Figure R.9: CMA analysis of DSP take rates

[✕]

Source: CMA analysis of intermediary data.

59.   The weighted average take rate for direct fees (aggerate direct DSP fees divided by aggregate value of ads purchased) across all DSPs for whom we have data for 2019 was 14%.[36] However, there is significant variation across DSPs. The lowest average take rate was 5% whilst the highest was 42%. This variation largely reflects differences in the services that have been provided – for example, some DSPs may be exclusively a self-service platform whereas for others almost all customers may purchase additional services – and for this reason comparison between the fees charged by different DSPs is not straightforward.

60.   Broadly speaking, the set of DSPs can be broken down into two categories:

- One category which offers largely or exclusively a self-service platform and whose charges mainly consist of a technology or platform fees – the average take rate of these platforms range between around 4% and 16%.

- A second category that typically offers additional services on top of the technology platform, such as managed services or enhanced targeting services and whose charges reflect this – the average take rate of these platforms range between around 20% and 42%. Within this second category some of the DSPs at the higher end of the fee range commonly send impressions straight to an ad server or bid for impressions directly into a header bidding solution and, where this is the case, these impressions will not incur SSP fees.

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[36] Note that this differs from the number in Figure R.8, as it is expressed as a percentage of spend on DSPs rather than of total ad spend.

61. The weighted average take rate for fees charged by DSPs on behalf of third parties (aggregate third-party fees divided by aggregate value of ads purchased) across all DSPs for whom we have data for 2019 was 2%.

SSP fees

62. We have received evidence about fees/charges from all the major SSPs who operate in the UK.[37] The evidence contains details on how they charge for the services they offer as well as the total amount they charge for these services.

63. SSPs have reported to us the values of advertising revenue for ads sold on their platforms, the fees that they charge directly for SSP services and any fees that they charge on behalf of third parties. This data incudes:

   - 'Value of ads sold' – value of advertising revenue for open display ads sold on their platforms; this includes the media/inventory cost paid to publishers and all fees, charges and commissions related to the sale of this inventory reported to us by the SSP. It should approximate the gross revenue received by the SSP for open display impressions.[38]

   - 'Direct fees' – fees charged for services provided directly by SSPs; this is generally a percentage charge attached to revenues passed onto publisher for ads that are sold on their platforms relating to the provision of the technology platform and the execution of the transactions.

   - 'Third-party fees' – fees charged on behalf of third parties, most commonly on behalf of data providers; however, very few SSPs reported charging fees on behalf of third parties.

64. SSPs generally charge on a revenue share basis, whereby they take a percentage of the revenue generated on behalf of publishers for the sale of advertising inventory. It was noted by most SSPs/ad networks that the scale of the revenue share tended to vary depending on whether the inventory was sold via a private marketplace or an open auction (with a higher revenue share retained for open auctions).[39] None of the SSPs stated that they charged any form of the controversial so-called 'buy-side' fees.[40]

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[37] Google Ad Manager (AdX), Xandr, Rubicon, Index Exchange, OpenX, Pubmatic, Verizon, Smart Ad Server and FreeWheel.
[38] Note in some cases this value was reported net of fees (ie inventory/media cost). Where this was the case, we have added the reported value of fees to the inventory/media cost to get an estimate of advertising revenue.
[39] For an explanation of the different paths through which digital advertising can be sold, including open auctions and private marketplaces, see Appendix M.
[40] This describes when an SSP takes an additional share of revenue by, for example, deducting an amount from a bid submitted by a buyer before passing it to the publisher ad server.

Figure R.10: CMA analysis of SSP take rates (2019 – Direct fees only)

[✕]

Source: CMA analysis of intermediary data

65.   The weighted average take rate for SSP direct fees (aggregate direct SSP fees divided by aggregate value of ads sold) across all SSPs for whom we have data for 2019 was 16%.[41] The lowest average take rate was 8% whilst the highest was 25%. The level of fees reported by SSPs as charged on behalf of third parties was negligible, so they have not been included in our analysis.

Ad Network Fees

66.   We have received evidence about fees/charges from all the major ad networks who operate in the UK.[42] The evidence contains details on how they charge for the services they offer as well as the total amount they charge for these services.

67.   Ad networks have reported to us the values of advertising revenue for ads sold on their platforms, the fees that they charge directly for ad network services and any fees that they charge on behalf of third parties. This data incudes:

- ‘Value of ads sold’ – value of advertising revenue for open display ads sold on their platforms; this includes the media/inventory cost paid to publishers and all fees, charges and commissions related to the sale of this inventory reported to us by the ad network, it should approximate the gross revenue received by the ad network for open display impressions.[43]

- ‘Direct fees’ – fees charged for services provided directly by ad networks; this is generally a percentage charge attached to revenues passed onto publisher for ads that are sold on their platforms relating to the provision of the technology platform and the execution of the transactions.

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[41] Note that this differs from the number in Figure R.8, as it is expressed as a percentage of spend on SSPs rather than of total ad spend.
[42] Ad Sense, AdMob, Outbrain, Taboola, Teads, Sharethrough, Facebook Audience Network, Triplelift.
[43] Note in some cases this value was reported net of fees (ie inventory/media cost). Where this was the case, we have added the reported value of fees to the inventory/media cost to get an estimate of advertising revenue.

- 'Third-party fees' – fees charged on behalf of third parties, most commonly on behalf of data providers; however, very few ad networks reported charging fees on behalf of third parties.

Figure R.11: CMA analysis of ad network take rates (2019 – direct fees only)

[✂]

Source: CMA analysis of intermediary data

68. Ad networks are intermediaries that aggregate inventory supply from publishers and match it with demand from their own demand sources, therefore connecting advertisers and publishers and integrating in a single service most intermediation functions. Accordingly, their fees are generally higher than those of DSPs and SSPs.

69. The weighted average take rate for ad network direct fees (aggregate direct network fees divided by aggregate value of ads sold) across all ad networks for whom we have data for 2019 was 34%. The lowest average take rate was 25% whilst the highest was 42%. The level of fees as charged on behalf of third parties was negligible, so they have not been included in our analysis.

Publisher ad server fees

70. Publisher ad servers typically charge publishers on a constant CPM basis. In some cases, the charge can become proportionally lower as the volume of ads served increases. Fee levels are typically low. Google told us that, for publishers using Ad Manager Small Business, ad serving fees are waived up to a certain impression threshold; for Ad Manager 360 (the version used by larger publishers), the ad serving fee is generally less than [✂] CPM. Our analysis suggests that this is approximately 0%-5% of total media spend. Smart estimates that its fees correspond to 1-2% of the value of the ads served; FreeWheel's estimate is [✂]. Publishers may also be charged a flat set-up fee, while additional fees may be charged for the provision of log level data or non-core services.

Conclusion

71. One of the concerns frequently raised by publishers and advertisers relates to the proportion of advertising revenues in open display which go to the providers of intermediation services. These concerns were highlighted by various public bodies which called on us to undertake this study.

72.   We have received data about fees and charges from most of the major intermediaries that operate in the UK. These intermediaries reported to us aggregated data for 2019 on all fees they charged for the provision of intermediation services, as well as the amount of open display advertising expenditure that passed through them. We used this data to estimate the average take rate by intermediaries at various levels of the open display advertising supply chain as a percentage of the initial expenditure by advertisers. Based on this evidence, we estimate that on average publishers receive around 65% of the initial expenditure by advertisers (ie the overall 'adtech take' is around 35 pence from every pound that is spent). This result is broadly comparable with results from other empirical studies of the adtech 'take rate', although we note the results of the PWC/ISBA study, which implied the 'take rate' may be higher, due to an unknown 'delta'.

73.   Given Google's position in the adtech stack, we carried out further analysis of its fees and of how these compare with those of other intermediaries. At an aggregate level, we found that the fees charged by Google for its intermediation services, both on the buy and on the sell side, are similar to those of its competitors. This is the case also for Google Ads, which does not charge an explicit fee to advertisers.

74.   We also heard concerns from some publishers that Google (and other adtech intermediaries) might be able to charge hidden fees, for example by taking an additional margin at points in the transaction chain. To test this, we analysed a data set containing event-level information for all Google Ad Manager open auctions related to web traffic in the UK (based on user location) in the period from 8 to 15 March 2020. The data covered around [✂] billion bids across [✂] billion auctions of individual ad impressions. For each winning bid, the data set included the amount paid by the advertiser into the DSP (only for Google DSPs) and the amount paid out to the publisher from Google Ad Manager. This allowed us to observe the end-to-end payments from advertiser to publisher where Google intermediaries were used – including any possible 'hidden' fees which would not be visible to either the advertiser or the publisher.

75.   Our analysis found that, in transactions where both Google Ads and Ad Manager (AdX) are used, Google's overall take rate is approximately 30% of advertisers' spend. This is an issue we have engaged with Google and other parties on extensively during the course of this study. Shortly before

publication of this report Google published some analysis of their take rates, similar to some of the analysis that we have undertaken in this appendix.[44]

76.   This Google take rates are broadly in line with (or slightly lower than) our aggregate market-wide fee estimate outlined above. We also calculated the margin between the winning bid and the second highest bid in AdX for Google and non-Google DSPs, to test whether Google was systematically able to win with a lower margin over the second highest bid (which might have indicated that they were able to use their data advantage to extract additional hidden fees). We did not find clear evidence that Google's winning margins were systematically lower than non-Google DSPs.

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[44] Google Ad Manager How our display buying platforms share revenue with publishers.

Annex: Overview of Google transaction dataset

77.   We obtained from Google a data set containing event-level information generated by Google Ad Manager in the seven-day period beginning 8 March 2020 Pacific Time (PDT).[45] The dataset covers Google Ad Manager web traffic in the UK (Based on user location) for that week. It contains all open auction traffic where impressions are viewed[46] – that is, excluding spam events, programmatic direct and private marketplace transactions, and impressions where not all metrics are defined.

78.   The data contains [✂] bids for [✂] queries. Each row in the data corresponds to a bid. For each bid, we observe:

   (a) the DSP used by the advertiser, and the cost type;

   (b) an anonymised advertiser ID;

   (c) the result of the auction for that bid (win, lose, floor, policy, other);

   (d) the amount bid by the DSP into the AdX auction;

   (e) any bid-specific bid floor.

   For winning bids, we also know:

   (f) the amount paid by the advertiser into the DSP (for Google DSPs);

   (g) any buy-side fees directly channelled to third parties (for DV360);

   (h) the amount paid out to the publisher from Ad Manager (AdX);

   (i) the number of clicks corresponding to the bid.

79.   Furthermore, for each query / impression (for which we might have multiple bids) we observe:

   (a) a timestamp;

   (b) user device characteristics (platform, operating system, and browser);

   (c) the domain of the publisher where the impression appears.

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[45] In GMT time, the dataset spans from 08:00 on Sunday 8 March to 08:00 on Sunday 15 March.
[46] Google told us that this amounts to 24% of Google Ad Manager traffic in the UK.