NBER WORKING PAPER SERIES

THE EFFECT OF CHOICE SCREENS ON MOBILE BROWSER USAGE: EVIDENCE FROM THE EU DIGITAL MARKETS ACT

Jesper Akesson
Kush Amlani
Raul Cepeda Suarez
Emily Chissell
Stefan Hunt
Michael Luca
Gemma Petrie

Working Paper 35112
http://www.nber.org/papers/w35112

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
April 2026

We thank Mozilla for providing data for this project. Mozilla provided funding for a previous project by Akesson, Chissell, Hunt, and Luca. Amlani and Petrie are employees of Mozilla. Luca has done consulting for tech companies. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

The Effect of Choice Screens on Mobile Browser Usage: Evidence from the EU Digital Markets Act

Jesper Akesson, Kush Amlani, Raul Cepeda Suarez, Emily Chissell, Stefan Hunt, Michael Luca, and Gemma Petrie

NBER Working Paper No. 35112
April 2026
JEL No. D03, K0

ABSTRACT

Can active choice mitigate the effects of preset defaults? We study this question using a difference-in-differences design around the rollout of the EU's Digital Markets Act, which required iOS and Android to display browser choice screens under certain conditions. We find large effects, with notable differences across platforms: from 15 months after the mandate onward, Firefox usage was 113 percent higher on iOS and 12 percent higher on Android relative to a no-mandate counterfactual. This gap is consistent with rollout differences, as Android showed choice screens primarily on new devices, whereas iOS also showed them on existing devices.

Jesper Akesson
The Behavioralist
and King's College London
jesper@thebehaviouralist.com

Kush Amlani
Mozilla
kamlani@mozilla.com

Raul Cepeda Suarez
Centro de Investigación y Docencia Económicas (CIDE)
raulcepedasuarez@gmail.com

Emily Chissell
Keystone
echissell@keystone.com

Stefan Hunt
AlixPartners
stefan.hunt@alixpartners.com

Michael Luca
Johns Hopkins University
Carey Business School
and NBER
mluca@jhu.edu

Gemma Petrie
Mozilla
gpetrie@mozilla.com

1 Introduction

Defaults are pervasive in digital markets. Mobile operating systems can pre-install an application and set it as the default, so that many consumers use it without making an active choice. This has raised policy concerns that default settings may steer behavior even when switching is in principle feasible. These concerns are especially salient in digital ecosystems, where firms may use control over access points to steer users toward connected products and services (Decarolis et al., 2025).

In the browser market, one proposed response is a choice screen, which prompts users to select a browser rather than passively rely on the preset default. In March 2024, the European Union's Digital Markets Act (DMA) required iOS and Android to display browser choice screens.

We study whether this intervention shifted browser usage away from preset defaults. A central challenge in studying default effects in digital markets is measurement. In many settings, researchers do not observe product usage directly and instead must rely on surveys, convenience samples, or other indirect proxies. We address this challenge using Mozilla data that provide a country-by-week panel of Firefox usage. To our knowledge, this is the first academic study to use these Mozilla data. This allows us to study observed usage at scale rather than self-reports or selected samples. At the same time, the data have important limitations. We observe usage for Firefox but not for other browsers, so we do not observe the full pattern of substitution across alternatives. We also observe aggregate daily active users rather than individual-level behavior. Accordingly, our estimates speak to how the DMA choice-screen mandate affected Firefox usage, rather than to complete market-wide substitution patterns or individual heterogeneity.

Using a country-by-week panel of Firefox daily active users from 2022 to 2025, we examine whether Firefox usage in EU member states changed at the time of the DMA rollout relative to non-EU comparison countries.

We find a persistent increase in Firefox usage after the mandate, with substantially larger effects on iOS than on Android. The effects also grow over the initial months: from 15 months after the mandate onward, Firefox usage is about 113 percent higher on iOS and about 12 percent higher on Android relative to a no-mandate counterfactual.

The contrast across platforms is consistent with differences in rollout decisions. The iOS choice screen was displayed to all existing users with iOS 17.4 and again to users with iOS 18.2 and Safari set to default. In contrast, Android browser choice screens were displayed primarily to new devices, and only to those for which Chrome was the default browser. Thus,

exposure to choice screens was considerably higher for users of iOS devices, than for users of Android devices.

While we do not observe how many people were shown choice screens, we can conduct a back-of-the-envelope calculation. A recent industry (Vodafone, 2025) survey of 5,186 smartphone users across France, Germany, Spain, Sweden, and the UK found that 36% planned to buy their next smartphone within a year. Moreover, data from Statcounter suggest that Samsung devices account for about 51% of EU Android usage (Statcounter Global Stats, 2026a,b). While Google states that some Samsung devices do not have Chrome as the default browser, we do not observe the share. Together, these data points imply an effect among those who saw a choice screen, i.e. a rough treatment-on-the-treated estimate, in the range of 33% to 68%, under bounding assumptions about the share of Samsung devices shown a choice screen. [1]

Our analysis highlights that the impact of choice screens on Android was limited in part by exposure. This back-of-the-envelope calculation implies that showing choice screens to all users, rather than only to users purchasing a new device, would have led to a much larger effect on Android.

More broadly, the results suggest that requiring active choice can shift usage away from preset defaults, but that the magnitude and timing of the response depend importantly on how the policy is implemented. The paper contributes to the literature on defaults and active choice by showing that requiring active choice can shift behavior in a major digital market, and that the magnitude of the response can differ sharply when the same broad policy is implemented differently across platforms.

Related Literature

A large literature has found that default settings often affect behavior. An earlier canonical example pertained to retirement saving, where automatic enrollment substantially increased 401(k) participation, and many individuals remained at default contribution rates and asset allocations (Madrian and Shea, 2001; Choi et al., 2002; Beshears et al., 2009). More recent evidence suggests that the level of the default also matters: higher defaults may be less sticky than lower ones, but still influence a meaningful share of employees (Beshears et al., 2025). Defaults also shape choices in other domains, including organ donation and end-of-life care (Johnson et al., 2012; Abadie and Gay, 2006; Halpern et al., 2013). Consistent with this broader evidence, Jachimowicz et al. (2019) document large average default effects alongside substantial heterogeneity across contexts.

[1] This calculation abstracts from additional Android exposure through factory resets and eligible existing Pixel devices, for which we do not observe a comparable denominator.

Another strand of this literature explores mechanisms behind default effects. In some cases, defaults may be interpreted as implicit recommendations. Default effects may also operate through inertia, cognitive costs, or inattention (Sunstein, 2013; Jachimowicz et al., 2019). For instance, evidence from health-plan choice is consistent with inattention playing an important role (Brot-Goldberg et al., 2023).

The prevalence of default effects, especially when preferences are unknown or incentives are misaligned, have motivated policies that require active choice rather than reliance on a preset option. Evidence on active-choice interventions is mixed. In the context of organ donation, Kessler and Roth (2014) find that a yes/no active-choice frame did not increase registrations relative to a conventional opt-in frame. At the same time, they show that other question wording can matter, and that asking individuals to reconsider their donor status increases registrations.

Related theoretical work highlights how control over digital access points can enable steering and cross-market leverage, with important implications for entry and competition (Heidhues et al., 2024). More broadly, recent work on digital platforms emphasizes how data and information structures shape competition and market power in digital environments (Bergemann and Bonatti, 2024). The effects of user-choice interventions may depend on the presence of viable challengers and on how such policies interact with other regulatory changes (Decarolis and Li, 2023). Related work also highlights how economics can help clarify the effects of the DMA, including the role of implementation and enforcement in shaping competitive outcomes (Fletcher et al., 2024; Crémer et al., 2023). A small recent literature studies such interventions in digital markets. Existing work finds effects ranging from relatively modest to substantially larger across settings (Decarolis et al., 2025; Allcott et al., 2025). Design details within choice-screen mechanisms can also matter. Ostrovsky (2023) studies auctions used to allocate positions in search-engine choice screens and shows that seemingly small auction-design choices can materially affect market outcomes. Related work has begun to look at the impact of the Digital Markets Act. For instance, Pape and Rossi (2026) study Google's DMA-induced changes to map results and find little evidence of traffic gains for rival mapping services.

Our paper contributes by studying the EU DMA browser choice-screen mandate, a setting in which a common policy was implemented differently across platforms. We show that requiring active choice can shift browser usage toward a non-default option, and provide evidence that implementation details play a significant role in shaping the size of the response.

2 Choice Screens and the DMA

The EU Digital Markets Act (DMA) entered its implementation and enforcement phase on 7 March 2024. From that date, operating system providers with a designated browser are required to present EU users with a browser choice screen, prompting an active choice rather than reliance on a preset default.

In practice, Android and iOS implemented this requirement in materially different ways. On Android, the choice screen appears on new or factory-reset devices during initial setup and on all Google Pixel handsets (Android, 2024). Users must select a browser, which is then installed (if needed) and set as the system default for opening links from other apps. However, except for new Pixel devices after March 2026, Chrome typically remains pinned to the home-screen dock ("hotseat"), preserving salience even after an alternative is selected(Alphabet, 2026). On iOS, the choice screen is shown when a user first launches Safari on any device running a compliant OS version, not only on new devices. Apple introduced the screen in iOS 17.4, where users could initially defer the choice via a "Not Now" option; later versions (iOS 18.2 and higher) increased commitment by removing deferral and requiring users to engage with the full list before setting a default. Also in iOS 18.2 and higher, Apple's implementation pins newly downloaded browsers via the DMA choice screen to the hotseat in place of Safari (Apple, 2026). Screenshots of these implementations are provided in Appendix Figures A1–A3.

We treat the DMA mandate as a natural experiment to study how browser choice screens affect downstream usage. We first estimate average effects on overall usage, and then quantify platform-specific effects for iOS and Android.

3 Data

We measure mobile browser usage using client-based daily active users (DAU), defined as the number of Firefox clients that ran on a given calendar day. DAU is the main outcome of interest. Our sample spans January 1, 2022 to December 31, 2025 and includes 27 EU member states, which were subject to the DMA browser choice-screen mandate, and 43 non-EU comparison countries. For each country, we observe DAU separately for iOS, Android, and their combination (Total). The weekly series are constructed as Monday–Sunday averages of daily active users. Table 1 reports descriptive statistics for the main DAU measures[2].

[2]We exclude non-European countries that, on average, had fewer than 10,000 daily active users, due to the high level of noise in their data, with many of them even recording zero users on some days.

Table 1: Descriptive Statistics: Daily Active Users

	Total		iOS		Android	
	Mean	SD	Mean	SD	Mean	SD
EU	4,799,204	753,051	871,742	336,004	3,927,463	422,786
US	2,211,595	126,880	760,485	46,440	1,451,110	83,263
IN	708,073	93,878	40,299	5,706	667,775	88,663
IR	471,663	70,930	24,606	4,398	447,057	67,278
GB	427,187	24,619	102,436	5,762	324,751	19,004
CN	370,336	53,695	132,460	13,932	237,876	43,169
BR	344,105	22,651	40,294	5,042	303,812	18,239
JP	315,744	12,560	81,336	1,874	234,409	11,943
CA	301,470	32,166	83,665	8,152	217,805	24,061
RU	216,580	6,232	20,702	1,187	195,878	6,443
AU	190,991	16,012	50,644	3,547	140,347	12,613
Overall	175,517	16,177	35,954	5,991	139,563	10,302

Notes: Statistics computed using weekly averages of daily active users over the estimation sample. The table reports the European Union aggregate and the ten largest non-EU countries by average total usage. Overall reports the unweighted average across all 70 countries in the analysis sample.

3.1 Empirical Strategy

Our identification strategy exploits the fact that the March 2024 DMA rollout required browser choice screens in EU member states, but not in other countries. We analyze the effects of the mandate in two complementary ways. First, we present graphical evidence on the evolution of Firefox usage around the rollout, aggregating countries into broader regions for ease of visualization. Second, we estimate difference-in-differences specifications that compare changes in Firefox usage in countries where browser choice screens were required with contemporaneous changes in other countries.

Our main specification is

$$\log(DAU_{ct}) = \alpha + \beta ChoiceScreen_{ct} + \delta_c + \gamma_t + \varepsilon_{ct}, \tag{1}$$

where c indexes countries and t indexes weeks. $ChoiceScreen_{ct}$ is an indicator equal to one for EU member states in the post-mandate period and zero otherwise, δ_c are country fixed effects, γ_t are week fixed effects, and ε_{ct} is an error term. We estimate this specification separately for Total, iOS, and Android DAU and cluster standard errors at the country level. The coefficient β captures the average change in Firefox usage after the mandate in countries required to implement browser choice screens relative to the contemporaneous change in other countries.

To study dynamics, we replace the single treatment indicator with interactions between the treatment indicator and indicators for months since the mandate, grouping month 15 and

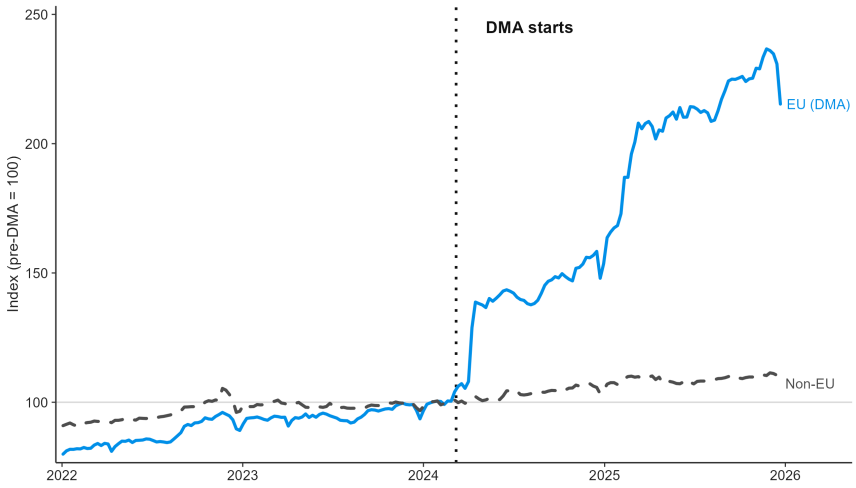
beyond into a single bin. This allows the estimated effect of the policy to evolve flexibly over time and makes it possible to compare the timing and magnitude of the response across platforms. Our interpretation of the difference-in-differences estimates rests on the assumption that, absent the DMA browser choice-screen mandate, Firefox usage in countries required to implement browser choice screens would have followed trends similar to those in other countries, conditional on country and week fixed effects.

4 Results

4.1 Graphical Evidence

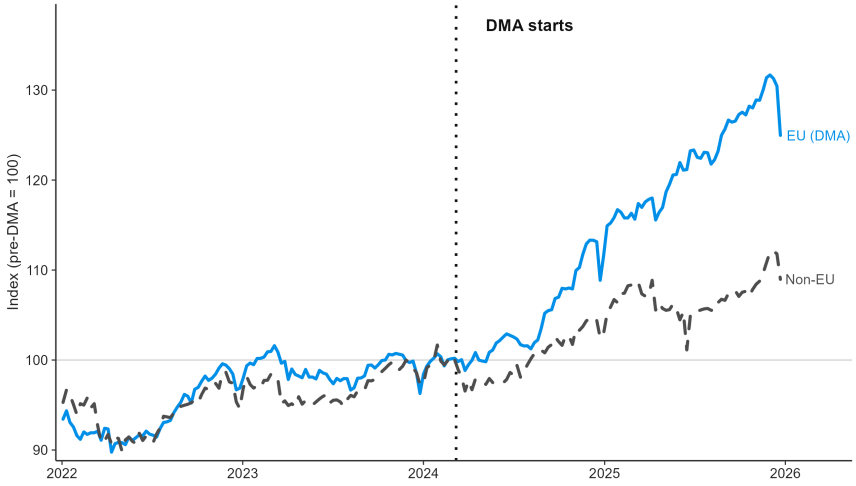
The graphical evidence shows a clear post-mandate divergence in Firefox usage around the March 2024 DMA rollout. Figures 1 and 2 plot the evolution of weekly average DAU around the rollout for the treated region and comparison regions. In both cases, usage in the treated region rises relative to the comparison regions after the mandate. The divergence is especially sharp on iOS, where the treated series begins to pull away immediately after the rollout. On Android, the divergence emerges more gradually and remains substantially smaller throughout the post-mandate period.

Figure 1: Firefox iOS usage in the EU versus non-EU before and after DMA browser choice screens



Notes. The vertical dashed line marks the EU introduction of browser choice screens on 7 March 2024. Solid lines show weekly averages of daily active iOS clients of Firefox by market. Daily active users (DAU) are counted as the number of Firefox clients run on a given day (client-based, not person-based). EU is an aggregate of AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK.

Figure 2: Firefox Android usage in the EU versus non-EU before and after DMA browser choice screens



Notes. The vertical dashed line marks the EU introduction of browser choice screens on 7 March 2024. Solid lines show weekly averages of daily active Android clients of Firefox by market. Daily active users (DAU) are counted as the number of Firefox clients run on a given day (client-based, not person-based). EU is an aggregate of AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK.

These figures suggest three key results. First, browser choice screens increased Firefox usage in the countries where they were required. In the pre-mandate period, the treated and comparison series evolve broadly similarly, with the main divergence emerging only after the March 2024 rollout. Second, the effects were much larger on iOS than on Android. Third, the timing of the response differs across platforms: the iOS response appears quickly and reaches a much higher level, whereas the Android response builds more slowly and remains substantially smaller. This pattern is consistent with the differences in rollout and implementation discussed above.

4.2 Average Effects

Table 2 reports our baseline difference-in-differences estimates. Across specifications, the estimated effects are positive and precisely estimated. These estimates summarize the average effect over the full post-mandate period. Converting the log-point estimates to percentage changes,[3] the estimates imply average increases of about 15 percent for total mobile usage, 60 percent for iOS, and 6 percent for Android relative to the no-mandate counterfactual.

[3]Percentage effects are computed as $100 \times (\exp(\beta) - 1)$.

The average effects confirm that browser choice screens increased Firefox usage and that the increase was much larger on iOS than on Android. At the same time, these estimates mask important dynamics. They combine the immediate response to the rollout with the subsequent evolution of usage, which is especially important in this setting because exposure to choice screens accumulated differently across platforms.

Table 2: EU choice screens and log average daily active users of Firefox

	Total	**iOS**	**Android**
Choice Screen	0.1356***	0.4681***	0.0618**
	(0.0232)	(0.0235)	(0.0258)
Observations	14,560	14,560	14,560
Countries	70	70	70
Clusters (country)	Yes	Yes	Yes
Fixed effects: Country and Week	Yes	Yes	Yes
R^2	0.9956	0.9955	0.9948

Notes: Dependent variable is the log of daily active users (DAU). Choice Screen indicator equals EU × Post. All specifications include country and week fixed effects. Standard errors are clustered at the country level. Stars denote: *** p<0.01, ** p<0.05, * p<0.1.

4.3 Dynamic Effects and Long-Run Impact

Table 3 allows the effect of the mandate to vary flexibly over time. The dynamic estimates reveal a striking contrast across platforms. On iOS, the response is immediate and grows steadily over time. The first-month effect is already positive and statistically significant, and the effect continues to rise over the following months. On Android, by contrast, the initial effect is close to zero and the response emerges only gradually. These dynamics are consistent with the institutional differences in implementation: iOS exposed a broad set of users quickly, whereas Android exposure accumulated more slowly.

Our preferred estimate of the longer-run effect comes from the 15+ month bucket. For iOS, the estimated longer-run effect is 0.7578 log points, obtained by summing the main effect and the Month 15+ interaction. This corresponds to an increase of about 113 percent relative to the no-mandate counterfactual. For Android, the corresponding estimate is 0.1169 log points, or about 12 percent. For total mobile usage, the corresponding longer-run effect is 0.2342 log points, or about 26 percent. These longer-run estimates are substantially larger than the average post-period effects, especially on iOS.

The dynamic results highlight an important substantive point: the effects of browser choice screens build over time. This matters for interpretation and for policy evaluation. In

settings where exposure accumulates gradually, short-run evaluations may materially understate the effects of active-choice interventions. Our results suggest that implementation details determine not only the size of the response, but also how quickly that response emerges.

Table 3: Non-linear effects of choice screens on log daily active users

	Dependent variable:		
	Total	iOS	Android
	(1)	(2)	(3)
Choice Screen	0.0144	0.1107***	-0.0029
	(0.0160)	(0.0145)	(0.0177)
Choice Screen × Month 2	0.0484***	0.2498***	0.0074
	(0.0145)	(0.0155)	(0.0151)
Choice Screen × Month 3	0.0722***	0.3187***	0.0215
	(0.0143)	(0.0191)	(0.0146)
Choice Screen × Month 4	0.0806***	0.3374***	0.0271
	(0.0163)	(0.0215)	(0.0166)
Choice Screen × Month 5	0.0639***	0.3281***	0.0095
	(0.0209)	(0.0270)	(0.0218)
Choice Screen × Month 6	0.0637***	0.3284***	0.0102
	(0.0194)	(0.0265)	(0.0207)
Choice Screen × Month 7	0.0840***	0.3565***	0.0289
	(0.0194)	(0.0218)	(0.0213)
Choice Screen × Month 8	0.0853***	0.3468***	0.0321
	(0.0196)	(0.0184)	(0.0217)
Choice Screen × Month 9	0.0877***	0.3399***	0.0362
	(0.0208)	(0.0205)	(0.0229)
Choice Screen × Month 10	0.1027***	0.3522***	0.0521*
	(0.0238)	(0.0222)	(0.0267)
Choice Screen × Month 11	0.1077***	0.3822***	0.0505*
	(0.0244)	(0.0254)	(0.0267)
Choice Screen × Month 12	0.1088***	0.4629***	0.0307
	(0.0247)	(0.0260)	(0.0271)
Choice Screen × Month 13	0.1375***	0.5730***	0.0372
	(0.0268)	(0.0281)	(0.0292)
Choice Screen × Month 14	0.1560***	0.5754***	0.0594**
	(0.0265)	(0.0265)	(0.0292)
Choice Screen × Month 15+	0.2198***	0.6471***	0.1198***
	(0.0330)	(0.0313)	(0.0375)
Country fixed effects	Yes	Yes	Yes
Week fixed effects	Yes	Yes	Yes
Clusters	Country	Country	Country
Observations	14,560	14,560	14,560
R^2	0.9958	0.9968	0.9948

Clustered standard errors at the country level in parentheses. EU member states enter as separate treated units. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

5 Discussion

Using the EU DMA browser choice-screen mandate as a natural experiment, we show that requiring active choice can materially shift usage away from preset defaults in a large digital market. Firefox usage rises persistently in countries required to implement choice screens, with much larger and faster effects on iOS than on Android.

This contrast suggests that active-choice policies are not a uniform intervention. In our setting, the same broad policy was implemented differently across platforms, and those differences are associated with sharply different usage responses. More broadly, the results suggest that design and implementation can shape not only whether active-choice policies matter, but how much they matter and how quickly their effects emerge.

Our analysis also opens several directions for future research. Because we study one browser rather than the full set of browser choices, we do not observe the full pattern of substitution across alternatives or broader welfare effects. Because the data are aggregated, we do not observe individual-level behavior. The effects may also vary across user bases, as iOS and Android have different user bases, including higher baseline Firefox usage on Android. More broadly, because implementation differs along several dimensions at once, we cannot fully disentangle the contribution of individual design features.

Overall, the paper contributes to the literature on defaults and active choice by providing evidence from a major digital market in which policy directly targeted reliance on preset options. A large literature shows that defaults can shape behavior. Our results show that policies designed to mitigate the influence of preset defaults can materially affect market outcomes, and that implementation is central to shaping both the size and timing of those effects.

References

A. Abadie and S. Gay. The impact of presumed consent legislation on cadaveric organ donation: a cross-country study. *Journal of health economics*, 25(4):599–620, 2006.

H. Allcott, J. C. Castillo, M. Gentzkow, L. Musolff, and T. Salz. Sources of market power in web search: Evidence from a field experiment. NBER Working Paper w33410, National Bureau of Economic Research, 2025.

Alphabet. Eu digital markets act (eu dma) compliance report: Non-confidential summary. Technical report, Alphabet Inc., March 2026. URL https://storage.googleapis.com/transparencyreport/report-downloads/pdf-report-bb_2025-3-7_2026-3-6_en_v1.pdf. Annual compliance report under Regulation (EU) 2022/1925 (Digital Markets Act).

Android. The choice screens: Your android, your choice, March 2024. URL https://www.android.com/choicescreen/dma/. Accessed: 2026-04-14.

Apple. Apple's dma compliance report: Non-confidential summary. Technical report, Apple Inc., March 2026. URL https://www.apple.com/legal/dma/NCS-March-2026.pdf. Submitted pursuant to Article 11(1) of Regulation (EU) 2022/1925 (Digital Markets Act).

D. Bergemann and A. Bonatti. Data, competition, and digital platforms. *American Economic Review*, 114(8):2553–2595, 2024.

J. Beshears, J. J. Choi, D. Laibson, and B. C. Madrian. The importance of default options for retirement saving outcomes: Evidence from the united states. In *Social security policy in a changing environment*, pages 167–195. University of Chicago Press, 2009.

J. Beshears, R. Guo, D. Laibson, B. C. Madrian, and J. J. Choi. Automatic enrollment with a 12 percent default contribution rate. *Journal of Pension Economics and Finance*, 24(1):152–182, 2025. doi: 10.1017/S1474747223000148.

Z. Brot-Goldberg, T. Layton, B. Vabson, and A. Y. Wang. The behavioral foundations of default effects: theory and evidence from medicare part d. *American Economic Review*, 113(10):2718–2758, 2023.

J. J. Choi, D. Laibson, B. C. Madrian, and A. Metrick. Defined contribution pensions: Plan rules, participant choices, and the path of least resistance. *Tax policy and the economy*, 16: 67–113, 2002.

J. Crémer, D. Dinielli, P. Heidhues, G. Kimmelman, G. Monti, R. Podszun, M. Schnitzer, F. Scott Morton, and A. De Streel. Enforcing the digital markets act: institutional choices, compliance, and antitrust. *Journal of Antitrust Enforcement*, 11(3):315–349, 2023.

F. Decarolis and M. Li. Regulating online search in the eu: From the android case to the digital markets act and digital services act. *International Journal of Industrial Organization*, 90: 102983, 2023.

F. Decarolis, M. Li, and F. Paternollo. Competition and defaults in online search. *American Economic Journal: Microeconomics*, 17(3):369–414, 2025.

A. Fletcher, J. Crémer, P. Heidhues, G. Kimmelman, G. Monti, R. Podszun, M. Schnitzer, F. Scott Morton, and A. De Streel. The effective use of economics in the eu digital markets act. *Journal of Competition Law & Economics*, 20(1-2):1–19, 2024.

S. D. Halpern, G. Loewenstein, K. G. Volpp, E. Cooney, K. Vranas, C. M. Quill, M. S. McKenzie, M. O. Harhay, N. B. Gabler, T. Silva, et al. Default options in advance directives influence how patients set goals for end-of-life care. *Health Affairs*, 32(2):408–417, 2013.

P. Heidhues, M. Köster, B. Kőszegi, et al. A theory of digital ecosystems. Technical report, ECONtribute Discussion Paper, 2024.

J. M. Jachimowicz, S. Duncan, E. U. Weber, and E. J. Johnson. When and why defaults influence decisions: A meta-analysis of default effects. *Behavioural Public Policy*, 3(2):159–186, 2019.

E. J. Johnson, S. B. Shu, B. G. Dellaert, C. Fox, D. G. Goldstein, G. Häubl, R. P. Larrick, J. W. Payne, E. Peters, D. Schkade, et al. Beyond nudges: Tools of a choice architecture. *Marketing letters*, 23:487–504, 2012.

J. B. Kessler and A. E. Roth. Getting more organs for transplantation. *American Economic Review*, 104(5):425–430, 2014.

B. C. Madrian and D. F. Shea. The power of suggestion: Inertia in 401(k) participation and savings behavior. *The Quarterly Journal of Economics*, 116(4):1149–1187, 2001.

M. Ostrovsky. Choice screen auctions. *American Economic Review*, 113(9):2486–2505, September 2023. doi: 10.1257/aer.20220699.

L.-D. Pape and M. Rossi. Is competition only one click away? the digital markets act's impact on google maps. *Marketing Science*, 2026.

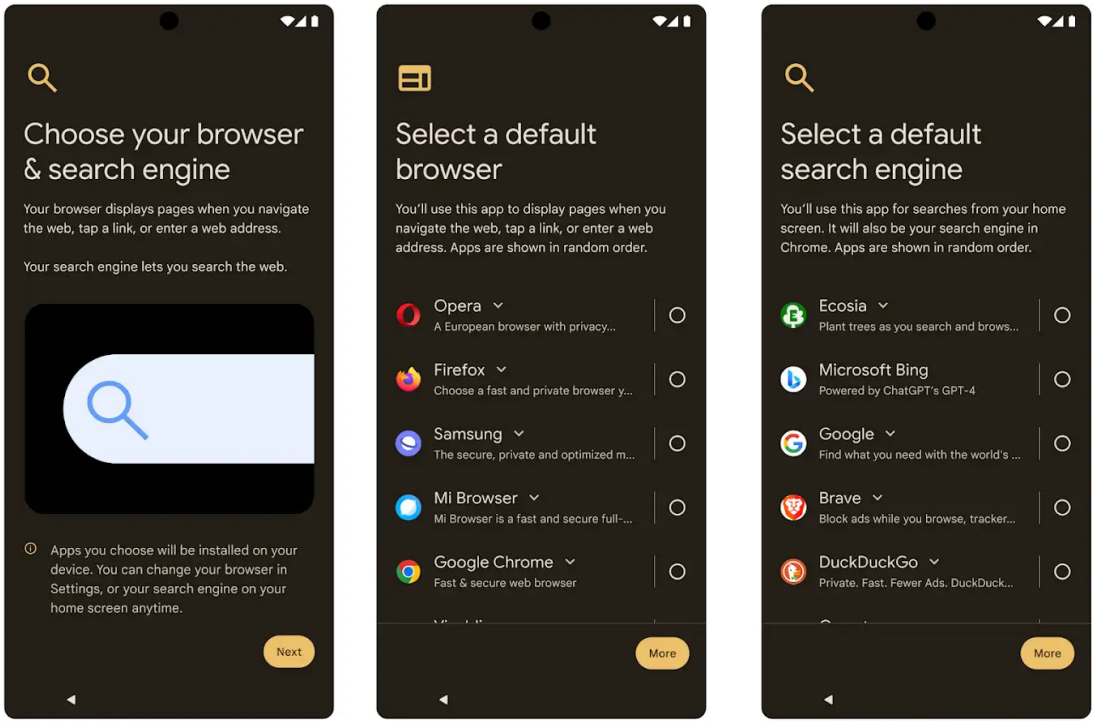
Statcounter Global Stats. Mobile operating system market share in europe, 2026a. URL https://gs.statcounter.com/os-market-share/mobile/europe. Accessed April 2026.

Statcounter Global Stats. Mobile vendor market share in europe, 2026b. URL https://gs.statcounter.com/vendor-market-share/mobile/europe. Accessed April 2026.

C. R. Sunstein. Deciding by default. *University of Pennsylvania Law Review*, 162:1–2, 2013.

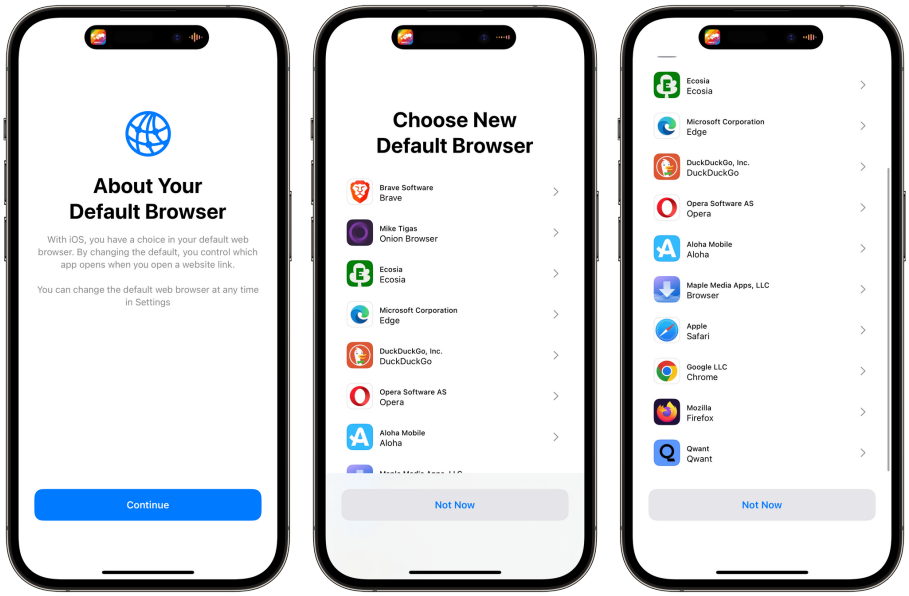
Vodafone. Gen z leads the way on buying refurbished devices, 2025. URL https://www.vodafone.com/news/newsroom/protecting-the-planet/gen-z-leads-the-way-on-buying-refurbished-devices.

Appendix Figure A1: Android browser and search engine choice screens



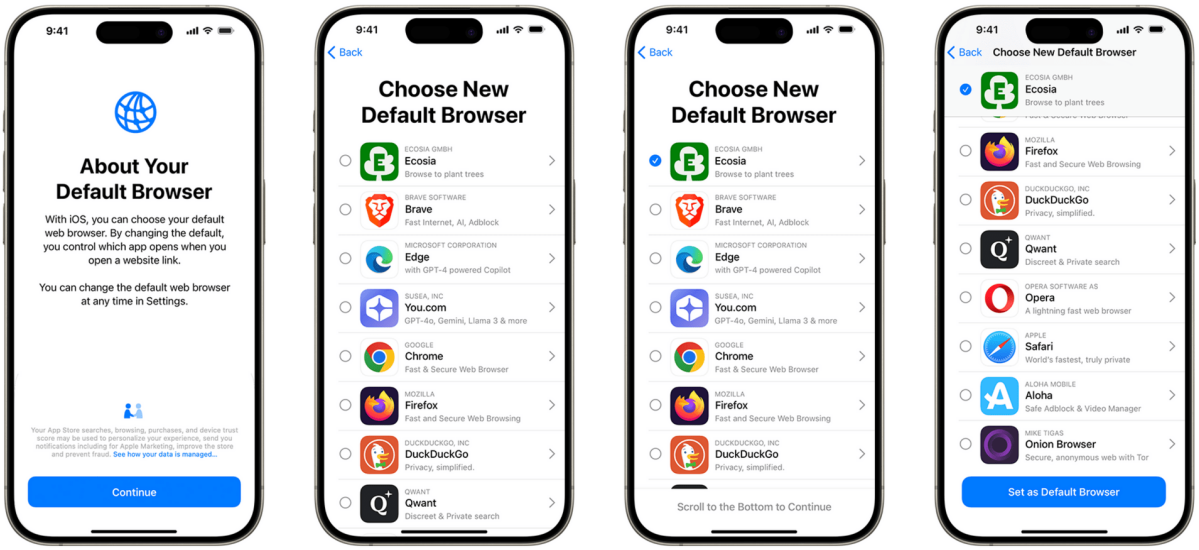
Notes. Choice screens presented during initial setup on new or factory-reset Android devices distributed in the EEA on or after March 6, 2024, on which Chrome is set as the default. First, an explainer page appears describing the concepts of browsers and search engines, and explaining that a default can be changed in Settings. When the user clicks "Next", they are presented with 12 browser options. On devices distributed in the EEA between March 6, 2024 and August 6, 2024 the five most popular eligible browsers in each country are at the top of the page (in random order), and the remaining seven are below, also ordered randomly. For devices distributed since August 7, 2024, all the 12 browsers are ordered randomly. Users select a default search engine separately in the following step.

Appendix Figure A2: iOS browser choice screen (v17.4 - v18.1)



Notes. Choice screens displayed the first time a user opens Safari on a compliant device. First, a small explainer lets the user know about the ability to choose a different default browser at any time. After the user taps "Continue," a list of up to 12 browsers appears (in random order). These are up to 11 most popular browsers based on the given country's App Store, plus Safari. If the user taps a browser from the list, they are presented with its App Store listing, and are able to install it with a single tap. The browser selection can be skipped via the "Not Now" button, in which case the user continues to use Safari as the default browser. The selected browser can be changed later in Settings.

Appendix Figure A3: iOS browser choice screen (v18.2 and higher)



Notes. Choice screens displayed on first launch of Safari. The first page explainer now features larger black text. After the user taps "Continue," a list of up to 12 browsers appears (including Safari). Each browser's name is now listed together with its subtitle from the browser's App Store product page (in grey text). Also, users can review each browser's App Store product page by tapping on the chevron to the right. There are now radio buttons on the left of the screen to indicate selection and the chosen browser is pinned to the top of the screen. Users are required to scroll through the full list of browser options before setting a browser as default and the previous "Not Now" option is replaced by a forced selection and a "Set as Default Browser" button. Apps appear in random order and users can revise their browser choice in Settings.