Generations and Gender Survey Croatia, Round 2 – Wave 1: Data Collection Process

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Citation Requirements

GGS Croatia Acknowledgement

Acknowledgement containing the following information must be included in all publications using GGS Croatia data:

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Background

Many public officials in Croatia are expressing concern over the potential negative impacts on the country's economic and social development, stemming from a declining working-age population due to low fertility rates and high emigration among young adults. Consequently, their interest goes beyond just descriptions of demographic trends; they are seeking explanations for various demographic phenomena. Effective policy design hinges on understanding contemporary societal challenges within diverse socio-cultural and institutional contexts. This task is heavily dependent on demographic research that utilizes longitudinal and cross-national data for country comparisons. However, Croatia faces a significant shortage of high-quality survey data encompassing a range of topics in population studies.

Historically, Croatia has seldom participated in cross-comparative surveys focusing on family and fertility. As a result, it missed crucial demographic multinational surveys like the Family and Fertility Survey (FFS), Population Policy Acceptance Survey (PPAS), and Generations and Gender Survey (GGS) during the 1990s and 2000s. While Croatia is represented in other international surveys, such as the Survey of Health, Ageing and Retirement in Europe (SHARE), European Social Survey (ESS), and European Values Study (EVS), these do not comprehensively address specific national issues concerning family, fertility, and population dynamics.

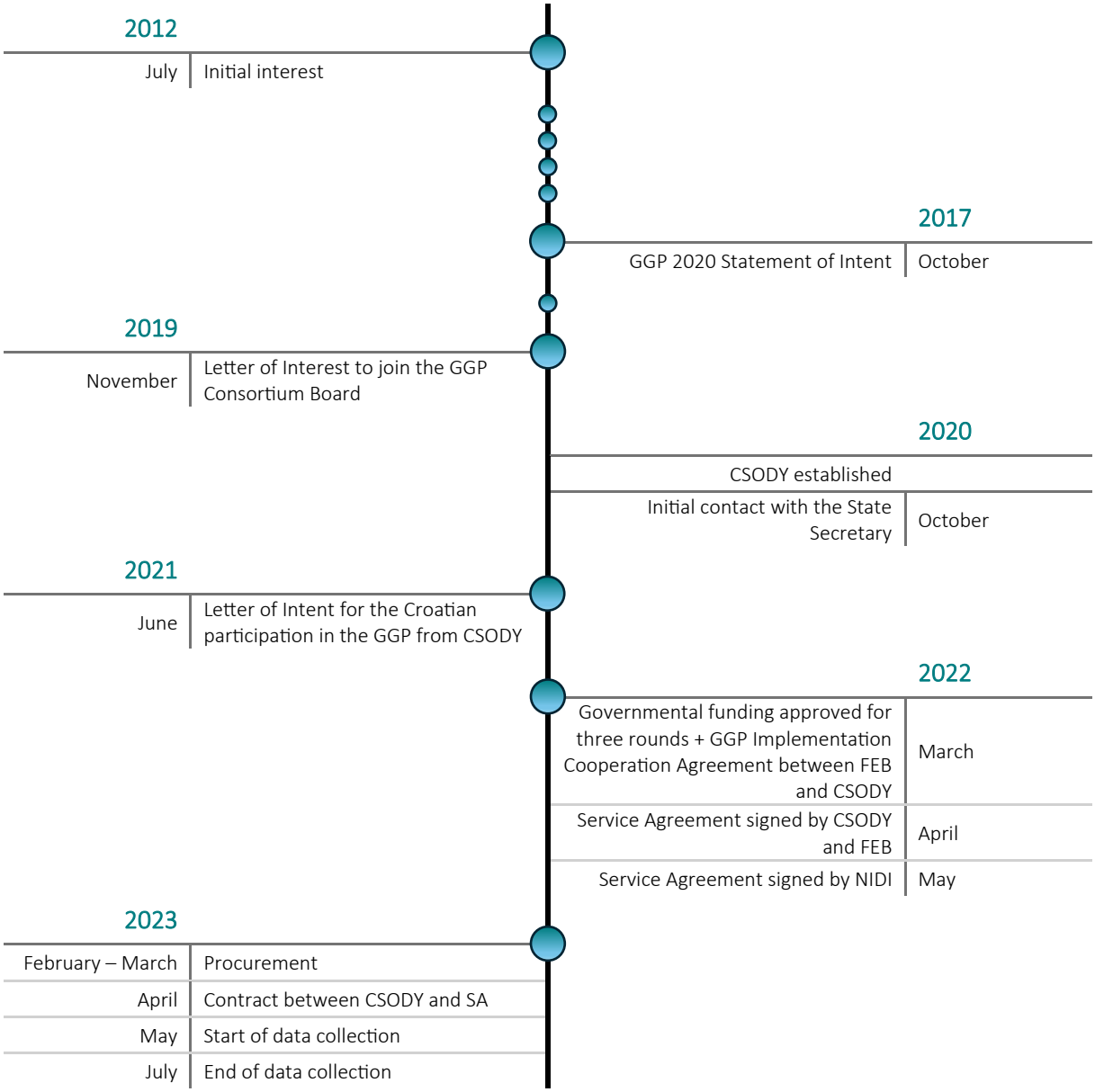
Carrying out the GGS is vital for advancing demographic research in Croatia. Joining the Generations and Gender Programme (GGP) grants Croatian researchers access to high-quality panel microdata, crucial for focused research and insightful policy analysis. This involvement will aid in formulating evidence-based policies on families and demographic changes, thus promoting more effective solutions to the country's emerging demographic challenges. Recognizing the critical need for targeted demographic data to address these challenges, this paper introduces a novel scientific web survey designed to collect comprehensive data on family and fertility within Croatia. Utilizing a Computer-Assisted Web Interviewing (CAWI) approach, combined with innovative outreach strategies, this survey aims to overcome the limitations of previous research efforts. By detailing our methodological approach and the technical aspects of data collection, we contribute to the broader goal of enhancing demographic research in Croatia.

Funding for Data Collection

Securing funding for the Croatian GGS was a lengthy and challenging process, stretching across nearly a decade, as shown in Figure 1. Our initial attempts to secure funding from the Croatian Bureau of Statistics and the Croatian Science Foundation were unsuccessful, as these institutions declined to support the data collection financially. However, the scenario began to change in 2020 with the establishment of the Central State Office for Demography and Youth (CSODY). Recognizing the critical importance of GGS data for informed policy development, CSODY took the decisive step to ensure the necessary funding was obtained.

In June 2021, the CSODY expressed Croatia's commitment to participate in all three rounds of the GGS by sending a Letter of Intent to the GGP Central Hub. The Croatian government officially endorsed the GGS implementation in March 2022. Subsequently, an agreement was signed between the Faculty of Economics and Business at the University of Zagreb (FEB), acting as the National Focal Point (NFP), and the CSODY. In May 2022, a service agreement was executed among the CSODY, FEB, and the Netherlands Interdisciplinary Demographic Institute (NIDI).

Figure 1: Timeline of the Funding Process



The CSODY funded the data collection, complemented by the FEB's in-kind contributions, notably through the national team's efforts. Utilizing the Translation Management Tool (TMT), this team undertook the translation of the questionnaire and carried out multiple pre-tests. The survey agency (SA) did pre-tests on multiple devices. These pre-tests were essential for refining question routing, wording, country-specific inquiries, and ensuring translation accuracy. The NFP was responsible for all aspects of the sample design, encompassing sampling strategies and fieldwork planning.

The CSODY also managed the procurement process for the SA, which encountered administrative delays and was finalized in March 2023. The contract with the SA for data collection was signed in April 2023 by the CSODY, confirming that all necessary conditions were in place to commence data collection.

Study Design

In Croatia, the innovative Push to Web (P2W) method for online surveys showed potential for wider use, as evidenced by the high response rate in the 2018 GGP Pilot study (Emery et al., 2020). The main

demographic target, individuals aged 18 to 54, has an internet usage rate of over 95% (Croatian Bureau of Statistics, 2022), a statistic that increased further due to the pandemic-induced shift to online activities. Despite the common problem of survey fatigue from frequent online survey requests, our approach, employing postal mail invitations, was able to lessen this impact.

The P2W approach offers several benefits over traditional face-to-face (F2F) interviews (Dillman, 2017). It is more cost-effective and supports methodological improvements, such as the use of true simple random sampling, which enhances precision and removes the need for clustering. Our sample's breadth, covering nearly all 556 cities and municipalities in Croatia, including remote areas, highlights the economic impracticality of widespread F2F surveys. Moreover, web surveys create a more comfortable environment for discussing sensitive issues, like sexual activity or previous relationships. This may result in more honest and accurate responses, though it could also lead to an increase in missing data. Thus, the P2W method significantly enhances the quality and dependability of data on these sensitive subjects.

Given that Croatia does not maintain a comprehensive population register comparable to those found in most EU countries, we utilized the Register of Permanent and Temporary Residence, provided by the Ministry of the Interior, as our sampling frame. There was a discrepancy between the total number of citizens recorded in the official 2021 census by the Croatian Bureau of Statistics and the figures obtained from the Register, resulting in an estimated overcoverage of approximately 6% in the Register's count. It is important to note, however, that the census data correspond to August 31, 2021, whereas the sampling frame is based on March 31, 2023. The discrepancy between the two data sources is predominantly attributed to the unreported emigration of numerous Croatian citizens, indicating a challenge in accurately capturing population movements and demographics within the current administrative systems.

For the Croatian GGS, individuals were the sampling units, with the gross sample comprising 18,000 individuals born between July 1, 1968, and March 31, 2005. As per our agreement with the SA, the minimum target was 5,000 completed interviews. We exceeded this target – obtaining 7,487 responses[1] – surpassing our initial expectations. Before initiating sampling, due to the previously mentioned underestimation of emigration, we anticipated some degree of over-coverage. Although less problematic than under-coverage, over-coverage in the sampling frame poses challenges in accurately calculating the true response rate. Individuals who have left Croatia and did not de-register were sampled in our gross sample, leading to an underestimation of the final response rate.

Incentives, Letters, and the Landing Page

To encourage participation in the survey, our initial strategy in 2022 involved sending an unconditional 50 kuna cash incentive to all respondents through registered mail. However, the survey launch was postponed to 2023 due to administrative reasons, coinciding with Croatia's transition from kuna to euro. Consequently, we were obligated to distribute the equivalent amount in euros, 6.64 euros, to the gross sample, as adjusting the predetermined 50 kuna amount was not feasible. Our plans encountered a setback due to Croatian Post regulations that prohibit sending cash in envelopes via registered mail. To overcome this, we resorted to using postal money orders for distributing incentives. The cash was either directly handed over by postal workers, or recipients were notified to pick it up at their nearest post

[1] This number refers to the number of respondents in the data release. As shown later, the total number of surveys accessed according to the final report from the SA amounts to 7,903. Of these, 412 respondents did not finish the LHI module, leaving 7,491 respondents. The Central Hub removed 4 respondents due to implausible age entries and invalid responses across all variables.

office. We intended for survey respondents to receive the invitation letter before the cash incentive, which is why the cash was dispatched one day after the invitation letter. However, due to a lack of synchronization in the delivery process, some respondents received the invitation letter and the cash incentive separately. In some instances, the cash arrived at respondents' homes before the invitation letter, even though the invitation letter was sent first. This sequence led some respondents to call the SA for clarification and additional information. Any undelivered letters or returned money orders were sent back to the SA. Figure 2 presents the invitation letter in its original Croatian language.

Figure 2: Invitation Letter

Poštovani/a,

Javljamo Vam se sa zamolbom za sudjelovanjem u velikome međunarodnom demografskom istraživanju koje se provodi u mnogim europskim državama. Tim istraživanjem želi se dobiti bolji uvid u životne događaje pojedinaca i parova, a tiču se, među ostalim, sklapanja partnerstva, zasnivanja obitelji i međugeneracijskih odnosa. Vaša životna situacija i Vaši stavovi ključan su izvor podataka za ovo istraživanje, čiji će rezultati poslužiti u pružanju informacija i znanstvenih dokaza potrebnih za stvaranje novih i unaprjeđenje tekućih javnih politika.

Ovo istraživanje dio je međunarodnog programa – *Generations & Gender Programe (GGP)* – kojeg koordiniraju Nizozemski interdisciplinarni demografski institut (NIDI) te vodeći europski istraživački centri iz polja demografije, uključujući i Centar za longitudinalne populacijske studije (CLPS) Ekonomskog fakulteta Sveučilišta u Zagrebu. Podatke prikuplja agencija Ipsos. Istraživanje se financira iz europskih i nacionalnih izvora, a prikupljanje podataka u Republici Hrvatskoj financira Središnji državni ured za demografiju i mlade.

Vaša je pomoć neophodna za uspjeh ovog istraživanja. Osobe koje kontaktiramo rođene su između 1. srpnja 1968. i 31. ožujka 2005. godine, a izabrane su slučajnim odabirom iz **Zbirke podataka o prebivalištu i boravištu Ministarstva unutarnjih poslova (MUP)**. Slučajni odabir znači da ako želimo dobiti reprezentativnu sliku stanovništva Hrvatske Vaše dobi, ne možemo Vas zamijeniti nekom drugom osobom, jer Vi predstavljate nekoliko stotina stanovnika Hrvatske sličnih Vama.

Vaše je sudjelovanje u ovom istraživanju dobrovoljno, a svi Vaši odgovori bit će anonimni. U skladu s Općom uredbom o zaštiti podataka (GDPR) jamčimo Vam da prikupljeni podaci nikad neće biti povezani s Vašim imenom, prezimenom i adresom te oni služe isključivo za slanje pozivnih pisama. Vašim odgovorima koristit ćemo se samo u istraživačke svrhe i neće Vas biti moguće identificirati.

Prosječno vrijeme za ispunjavanje *online* upitnika iznosi oko 45 minuta. Ako već niste, uskoro ćete poštom primiti **6,64 eura (50 kuna)** kao znak pažnje za Vaše vrijeme i sudjelovanje.
Sudjelovati možete tako da preko računala, laptopa, tableta ili mobitela:

- Odete na internetsku stranicu: https://www.ggp-i.org/hrvatska/
  ili skenirate kamerom QR kôd iz ovog pisma
- Unesete šifru **XXXXXXXXX** da biste pristupili anketi
- Ispunite anketu do kraja.

Također, bilo kad možete prekinuti ispunjavati anketu i vratiti se natrag te nastaviti tamo gdje ste stali unosom iste šifre. Da bismo dobili što kvalitetnije podatke za međunarodne usporedbe lijepo Vas molimo da anketu ispunite do kraja. Ako imate bilo kakva pitanja, slobodno nam se javite na besplatan broj telefona: **0800 333 343** ili putem e-maila: **ggp.pomoc@ipsosadria.com**

Hvala Vam najljepša što svojim sudjelovanjem pomažete u provođenju ovoga važnog znanstvenog istraživanja.

Srdačan pozdrav

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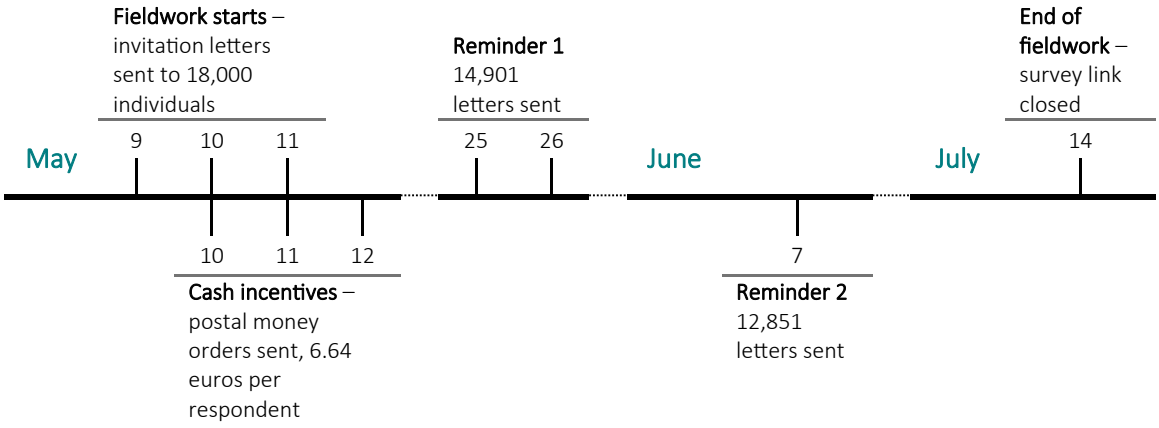
The invitation letter emphasized the research goal of gaining deeper insights into life events related to forming partnerships, starting families, and intergenerational relationships. It explained the significance of the respondents' answers and how they would be used. The letter listed the participating institutions and funding sources. It clarified that individuals were randomly selected from the Ministry of the Interior's registry and explained the importance of their participation. The letter highlighted the survey's voluntary nature, the anonymization of responses for research purposes only, and guaranteed respondent anonymity. It was noted that personal data were used solely for sending invitation letters. The letter outlined the average time required to complete the questionnaire and detailed the cash incentive respondents would receive via postal mail for their participation. Instructions for completing the survey, either by visiting the landing page or scanning the QR code in the letter, were provided. Each respondent was given a unique code to access the survey, allowing them to pause and resume at their convenience. A toll-free phone number and an email address were provided for respondents with questions. The letter was signed by the director of the SA, the leader of the national team, and the head of the funding agency. It was designed to be visually appealing and concise, serving as the primary communication channel with respondents, fitting onto a single page.

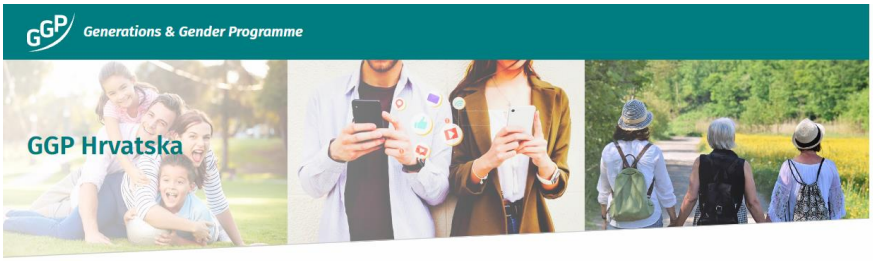
The initial plan involved sending two reminder letters, spaced two or three weeks apart. However, we adjusted this strategy by sending the second reminder a bit earlier in the Adriatic region, where response rates were lower. The structure of the reminders was comparable to that of the invitation letters. The two reminders were largely similar, with the key difference being that the latter emphasized that over 5,000 respondents had already completed the survey and specified the final deadline for survey completion. Figure 3 outlines the schedule of our fieldwork.

Figure 3: Fieldwork Timeline



In our efforts to boost engagement among respondents, we carefully designed the landing page on the GGP website (see Figure 4), incorporating infographics to enhance its visual appeal and effectiveness. Respondents could access the landing page through a QR code included in the invitation letter and both reminders. We ensured comprehensive provision of essential information for respondents, including a GGP promotional video with Croatian subtitles.

Figure 4: Landing Page



REPUBLIKA HRVATSKA
Središnji državni ured za demografiju i mlade

Središnji državni ured za demografiju i mlade

Sveučilište u Zagrebu
Ekonomski fakultet

centar za longitudinalne populacijske studije

Ipsos

GGP Hrvatska

Pokrenite anketu

Dobrodošli na našu internetsku stranicu! Jeste li primili pismo u kojem ste zamoljeni da sudjelujete u ovom istraživanju i podijelite s nama svoju priču? Na ovoj stranici želimo se predstaviti i informirati vas detaljnije o istraživanju.

GGP – Generations & Gender Programme velika je istraživačka infrastruktura u sklopu koje se prikupljaju međunarodno usporedivi i visokokvalitetni podaci koji su ključni u boljem razumijevanju brojnih društvenih i demografskih izazova. Glavni cilj studije bolje je razumijevanje životne situacije punoljetnih osoba mlađe i srednje dobi (18 – 54). To će omogućiti istraživačima da ponude odgovore na aktualne društvene izazove u Hrvatskoj i mnogim drugim zemljama. Zanima nas vaše osobno mišljenje o temama kao što su usklađivanje poslovnog i privatnog života, želja za djecom i planiranje obitelji, odnosi s bliskim ljudima i partnerom/icom te općenito vaši stavovi o sličnim temama. Ispitujemo osobe neovisno o tome žive li sami, s partnerom, s roditeljima, s djecom i sl.

Prikupljeni podaci upotrebljavat će se isključivo u znanstvene svrhe, a omogućit će provedbu ciljanih istraživanja i donošenje na dokazima utemeljenih politika. O najvažnijim rezultatima istraživanja GGP Hrvatska pravovremeno će izvještavati tvorce javnih politika i širu javnost.

Istraživanje zajednički provode Nizozemski interdisciplinarni demografski institut (NIDI), te brojne druge istraživačke institucije iz polja demografije diljem Europe. Istraživački tim u Hrvatskoj čine znanstvenici iz Centra za longitudinalne populacijske studije u sklopu Ekonomskog fakulteta u Zagrebu.

Pokrenite anketu

NAJVAŽNIJE INFORMACIJE ZA SUDIONIKE

Potrebno je izdvojiti malo vašeg vremena za znanstvene svrhe.

Procijenjeno vrijeme za ispunjavanje ovog upitnika na internetu iznosi oko 45 minuta. Anketu možete zaustaviti u bilo kojem trenutku i vratiti joj se kasnije ako želite. Ponovno unošenje dobivene šifre omogućit će vam nastavak tamo gdje ste stali.

O kojim je temama ovo istraživanje?

Istraživanje pokriva širok raspon tema, a poseban su mu fokus životni događaji i partnerstva, fertilitet, djetinjstvo i sociodemografski status roditelja, međugeneracijski odnosi, usklađivanje privatnog i poslovnog života i sl.

Vaši su podaci sigurni.

U skladu s Općom uredbom o zaštiti podataka (GDPR) jamčimo Vam da prikupljeni podaci nikada neće biti povezani s vašim imenom i prezimenom, adresom ili nekim drugim izravnim identifikatorom. Oni nam služe isključivo kao kontakt podaci prilikom slanja pozivnih pisama.

Što se događa s informacijama o meni?

Vaši će podaci ostati striktno anonimni. Nisu mogući zaključci iz istraživanja o vama kao osobi, već samo izjave tipa „žene u mlađim dobnim skupinama u prosjeku ranije iseljavaju iz roditeljskog doma u odnosu na mlađe muškarce".

Before the survey commenced, an introductory text provided information about the survey, as shown in Figure 5 (in Croatian language). In this section, respondents were informed that they could refuse to answer any questions if they wished. They were also told that by proceeding past the statement, they consented to grant access to their anonymized data to authorized and verified researchers for scientific purposes. Additionally, it was highlighted that the survey could be paused and resumed at any point, picking up from the same question where it was left off.

Figure 5: Introductory Text

intro (Intro)

Ovo je istraživanje o obitelji, radu i svakodnevnom životu. Vaši odgovori pomoći će nam razumjeti složenost današnjih obitelji i životne okolnosti u različitim fazama ljudskog života. Cilj je bolje razumjeti, na primjer, što utječe na odluke o imanju djece ili na to kako parovi dijele kućanske poslove. Rezultati će pomoći tvorcima politika u rješavanju izazova vezanih uz ravnotežu između poslovnog i privatnog života, društvene odnose među generacijama i ravnopravnost spolova. Vaše je sudjelovanje dobrovoljno. Ako ne želite odgovoriti bilo na koje pitanje jer su neka osjetljive prirode, na takva pitanja uvijek možete odbiti odgovoriti. Iz podataka ćemo izostaviti sve osobne identifikatore i pristup anonimiziranim podacima omogućiti ovlaštenim i provjerenim istraživačima u znanstvene svrhe.

Pristajem nastaviti

As part of our panel care efforts, we have already dispatched last year's seasonal greetings to participants who completed the survey up to the LHI section (see Figure 6). We plan to continue this annual practice to express our appreciation and strengthen our connection with the survey panel community.

Figure 6: Season's Greetings

Data exports were provided by the GGP Central Hub on a weekly basis (every Monday and Friday) and as required by the SA and NFP. During the fieldwork, the SA was notified by the Croatian Post about unclaimed cash incentives that were returned. Additionally, some individuals indicated they did not wish to receive the cash incentive (regardless of whether they completed the survey or not) and personally returned it to the agency. In the total gross sample, 77% of the selected respondents received the cash incentive, while 23% refused or did not collect the money (see Table 1).

Table 1: Distribution of Cash Incentive Returns Among Respondents in the Gross Sample

Total gross sample	Received the cash incentive	Did not receive the cash incentive
18,000	13,852	4,148
100%	77%	23%

Source: Final report from the IPSOS Survey Agency.

Among the participants who completed the questionnaire up to the last unfiltered question (see Table 2), 94% received the cash incentive, while 6% refused it.

Table 2: Distribution of Cash Incentive Returns Among Respondents Who Completed the Questionnaire up to the Last Question

Respondents who answered the last unfiltered question	Did not return the cash incentive	Returned the cash incentive
6,884	6,463	421
100%	94%	6%

Source: Final report from the IPSOS Survey Agency. Note: When excluding the 4 respondents removed by the Central Hub due to implausible age entries and invalid responses across all variables, the number of respondents who answered the last unfiltered question and did not return the cash incentive drops to 6,461. The total is then 6,461 + 421 = 6,882.

Country-Specific Questions

In the Croatian GGS, following the guidance of Gauthier et al. (2021), we added specific questions not required by the main questionnaire to ensure the survey's suitability for comparing data across different countries. For instance, we inquired whether households have a mortgage and introduced separate questions about weekend work (Saturday and Sunday) to collect detailed information for both respondents and their partners.

Drawing from modules used in Nordic countries, we incorporated specific questions on topics such as intensive parenting and global uncertainties into the Croatian GGS. These additions included a question on intensive parenting (6 sub-items), a question from the module on global uncertainties (13 sub-items) with an extra question on depopulation, 2 items on subjective employment uncertainty for both the respondent and their partner, as well as single items on optimism and risk aversion. Furthermore, we included a question on social media use (Andersson, Dahlberg, & Neyer, 2020) and a question from the German Family Demography Panel Study (FReDA, 2023) regarding which partner earns more. We incorporated optional questions on fertility, based on the Theory of Planned Behaviour, as well as questions aimed at understanding gender equality and reproductive health autonomy, in alignment with Sustainable Development Goal (SDG) 5.6.1. To keep the questionnaire's average completion time around 50 minutes, we decided not to include a set of (optional) questions on social exclusion from the baseline questionnaire. This approach ensures that the Croatian GGS captures important country-specific details while remaining streamlined and relevant for broader comparative research.[2]

[2] A full list of country-specific questions is available here: https://www.ggp-i.org/ggs-round-ii/#toc2.

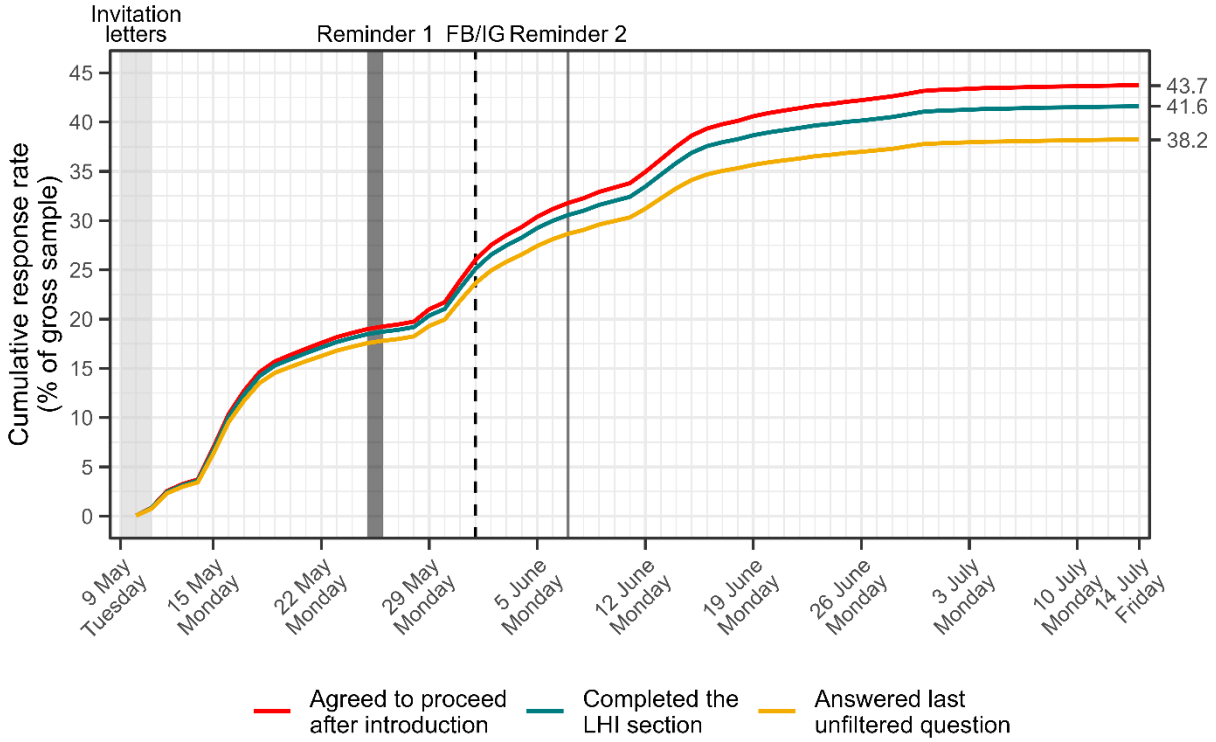
Table 3: Overview of Country-Specific Questions

Theory of planned behaviour	Housing mortgage
SDG 5.6.1.	Weekend work split: Saturdays and Sundays
Global uncertainty (14 questions – depopulation extra)	Subjective uncertainty (respondent and partner)
Intensive parenting module	Optimism and risk
Who earns more (based on FReDA)	Social media use

Fieldwork Dynamics: Patterns of Survey Response

Our fieldwork strategy was implemented as follows: we began by sending out invitation letters by post, which included a link to the survey/QR code, along with personalized codes for accessing the questionnaire via landing page. This dispatch was carried out over three days in three batches of 6,000 letters each, from May 9 to May 11. Figure 7 illustrates the survey progress from the start to the end of the fieldwork.

Figure 7: Survey Progress – A Timeline of Response Rates



Note: Based on data provided by the Central Hub (excluding 4 respondents with implausible age entries and invalid responses across all variables).

To encourage participation in the survey, we sent an unconditional cash incentive of 6.64 euros via postal money order, separately from the invitation letters, with a one-day delay. Two reminder letters were dispatched on May 25/26, when a total of 14,901 reminders were sent, and on June 7, with 12,851 reminders being dispatched. The sending and return of the invitation letters, reminders, respondents' incoming contacts via phone and email, and the recording of unclaimed money by respondents were all electronically managed using the IPSOS Recruitment App.

We also launched a Facebook/Instagram (FB/IG in Figure 7) campaign on June 1 to boost the response rate. The campaign, managed by CSODY, included a Facebook page[3] that reached approximately 20% of our target demographic. The survey was also advertised in various local media outlets.

The fieldwork progressed as follows: two weeks after sending the invitation letter by registered mail, the first reminder inviting participation in the survey was dispatched. Reminders were not sent to individuals who had already completed the questionnaire by a certain date (for whom we had a record), those who were determined to have moved (either through phone or email contact or by the status of the returned invitation letter), the deceased, and those who refused to accept the letter. The second reminder was sent a week earlier than originally planned to improve the response rate among potential participants. Both reminders were sent by regular mail.

Starting from May 9, a help desk with a toll-free telephone line and an email address was available to all respondents from Monday to Friday, 9 AM to 5 PM. The help desk was also sometimes available on weekends, albeit with variable working hours. Of all the contacts with the help desk (see Table 4), 80% were made by phone and 20% by email. The primary reasons for contacting included informing that the survey had been completed, that the respondent was unavailable, refused participation, or the contacts were aimed at inquiring about the survey itself.

Table 4: Contacts with the Help Desk

Total number of contacts	Via email		Via phone	
425	83		342	
100%	20%		80%	
Thereof	**Number of email contacts**	**Share of email contacts**	**Number of phone contacts**	**Share of phone contacts**
Survey fully completed	45	54%	65	19%
Respondent refuses participation	3	4%	41	12%
Respondent requests data deletion	0	0%	7	2%
Unavailable (various reasons)	11	13%	108	32%
Invitation letter or cash received	24	29%	121	35%

Source: Final report from the IPSOS Survey Agency.

A total of 7,903 respondents accessed the survey, of which 87% reached the last question. Completing the questionnaire up to and including the Life History section is crucial, as we include in the final data release all respondents who completed the questionnaire up to that section and beyond. Therefore, Table 5 presents various degrees of questionnaire completion.

Table 5: Survey Participation Breakdown – Access, Completion, and Partial responses

Total number of surveys accessed	Answered the last unfiltered question	Completed the survey up to the end of the LHI module (but not to the last unfiltered question)	Started the survey but did not complete the LHI module
7,903	6,884	607	412
100%	87%	8%	5%

Source: Final report from the IPSOS Survey Agency. Note: When excluding the 4 respondents removed by the Central Hub due to implausible age entries and invalid responses across all variables, the number of respondents who answered the last unfiltered question drops to 6,882. The number who completed up to the end of the LHI module but not fully drops to 605. This gives the 7,487 respondents in the final data release.

[3] https://www.facebook.com/GGPHrvatska

There were 1,540 unachieved contacts in total (respondents were unreachable for various reasons), representing 9% of the total gross sample of 18,000 (see Table 6). The majority of unachieved contacts, accounting for 60%, occurred because individuals failed to pick up both the registered letter and the cash incentive. Additionally, 21.9% were due to the postal worker's inability to reach the respondent's address.

Table 6: Reasons for Unachieved Contact

Reason	N	Share
Informed, did not pick up (neither registered letter nor cash)	925	60.1%
Unknown address of respondent (from letters only)	337	21.9%
Respondent moved within Croatia (from letters and notes)	180	11.7%
Respondent unable to participate – health reasons (mental difficulties, hospital stay, disability)	34	2.2%
Respondent moved abroad (lives abroad, emigrated – note)	26	1.7%
Respondent unable to participate – technical reasons (no access to internet, mobile/computer, computer illiterate)	23	1.5%
Respondent deceased	13	0.8%
Respondent in prison	2	0.1%
Total	**1,540**	**100%**

Source: Final report from the IPSOS Survey Agency.

By the end of fieldwork, a total of 7,876 respondents agreed to proceed after the introduction, and 6,884 answered the last unfiltered question.[4] Daily data analysis revealed that the highest number of incoming surveys and the most significant increase in response rate occurred following the distribution of the invitation letters and incentives. The reminders were also effective, as shown in Figure 7.

Mitigating Selective Response through Weighting

Table 7 displays the distribution of main socio-demographic characteristics and regional breakdowns for the final (net) sample (N = 7,487) and the 2021 census (N = 1,767,863 persons aged 18–54), alongside available characteristics for the total (gross) sample (N = 18,000) and the corresponding response rates.[5]

The net sample largely mirrors the gross sample and census data in terms of age distribution, albeit with slight variations. The response rate starts relatively high in the youngest age group (18–24), dips slightly in the 25–29 age group, and then stabilizes around 40% for the middle age groups. There is a noticeable increase in the response rate for the oldest age group (50–54), peaking at 45.30%. This pattern suggests a slight increase in response rates as age increases, particularly evident in the oldest age group. In terms of gender distribution, the net sample diverges from both the gross sample and census data, exhibiting an overrepresentation of women. While the gross sample does not provide information on educational attainment or marital status, the corresponding census figures do, and reveal discrepancies when compared with the net sample data. The highly educated constitute 38.74% of the net sample, a greater proportion compared to their 29.69% representation in the census, indicating a higher response rate among this group relative to others. Additionally, the regional distributions show some differences between the net sample and both the gross sample and census data. These disparities, influenced by

[4] When excluding the 4 respondents removed by the Central Hub due to implausible age entries and invalid responses across all variables, the number of respondents who agreed to proceed after the introduction drops to 7,872, and the number who answered the last unfiltered question to 6,882.

[5] Note that Table 7 does not differentiate between the gross sample and a subset excluding non-contacts (see previous section of the paper); instead, it contrasts only between the gross sample and the net sample, i.e., the final dataset, when presenting response rates.

varying response rates across regions, are reflected in the net sample's distribution compared to those of the gross and census figures, with the latter two exhibiting close agreement. In general, the differences between the gross sample and census figures for age, gender, and regional distributions are relatively small, suggesting that the gross sample aligns fairly well with the census data.

Table 7: Net vs. Gross Sample and the 2021 Census

	Net sample		Gross sample	Response rate	Census 2021
	N	Share non-missing			
Age					
18–24	1,264	16.90%	16.27%	43.17%	16.01%
25–29	889	11.89%	12.78%	38.64%	12.11%
30–34	911	12.18%	12.68%	39.90%	12.87%
35–39	1,070	14.31%	14.53%	40.92%	14.46%
40–44	1,124	15.03%	15.36%	40.65%	15.12%
45–49	1,122	15.00%	14.91%	41.80%	14.72%
50–54	1,098	14.68%	13.47%	45.30%	14.71%
Missing	*9*				*None missing*
Gender					
Males	3,318	44.32%	50.53%	36.48%	50.33%
Females	4,169	55.68%	49.47%	46.82%	49.67%
Missing	*0*				*None missing*
Education					
Low	248	3.37%	NA	NA	6.90%
Low, still in education	29	0.39%	NA	NA	1.00%
Medium	3,620	49.15%	NA	NA	55.62%
Medium, still in education	615	8.35%	NA	NA	6.71%
High	2,853	38.74%	NA	NA	26.69%
Missing	*122*				*0.07%*
Marital status					
Never married	3,155	43.45%	NA	NA	43.22%
Ever married	4,054	56.55%	NA	NA	56.65%
Missing	*318*				*0.13%*
Region (NUTS2)					
Adriatic Croatia	2,142	29.05%	33.91%	35.09%	32.86%
City of Zagreb	1,631	22.12%	20.14%	44.98%	21.11%
Northern Croatia	1,705	23.12%	20.38%	46.48%	20.65%
Pannonian Croatia	1,896	25.71%	25.57%	41.20%	25.38%
Missing	*113*				*None missing*

Note: NA = not available. The sums of percentages might not total 100% due to rounding. We calculated the age of respondents in the net sample using the month and year of the interview and their reported month and year of birth. Data from the gross sample refer to March 31, 2023. Thus, for example, regarding response rates by age, there is a slight mismatch between the numerator and the denominator because the age of respondents in the net sample refers to their age at the interview date (i.e., between May 10, 2023, and July 14, 2023), while the age of respondents in the gross sample refers to their age on March 31, 2023.

We encountered some inconsistencies between the net sample and the gross sample in terms of month of birth (120 non-missing mismatches or 1.60% of the net sample), year of birth (113 non-missing mismatches or 1.51% of the net sample), gender (41 mismatches or 0.55% of the net sample), and region (300 non-missing mismatches or 4.01% of the net sample). These inconsistencies may be due to several reasons, including the survey being filled out by someone other than the intended respondent,

respondents intentionally providing false information, data entry errors, outdated or incorrect information in the gross sample about the region of residence, or respondents skimming through the survey without paying attention to their responses. Additional analysis of the region mismatches suggested that incorrect information in the gross sample might play a role, as only 11 of the 300 region mismatches also had discrepancies in month or year of birth, or gender (we are referring to 11 respondents with non-missing data on month and year of birth, and gender in the net sample).

Although the mismatch between the net and gross samples was relatively small, we have included flag variables in the data release to indicate whether the data on month or year of birth, gender, or region for each respondent in the net sample matches the data in the gross sample. We constructed two flag variables:

- Flag 1 indicates a mismatch on any of the variables: month of birth, year of birth, gender, or region.
- Flag 2 indicates a mismatch on month of birth, year of birth, gender, or region, but it is specifically designed to flag a region mismatch only if there is also a mismatch in either month or year of birth or gender. This flag thus adds an extra condition: all mismatches on month of birth, year of birth, and gender are indicated, and region mismatches are indicated only if accompanied by discrepancies in month or year of birth or gender.

The flag variables take a value of 1 in case of a mismatch and 0 if the net sample data matches the gross sample data. If any of the comparison variables in the net sample are missing, the flag variables automatically take a value of 1. Table 8 provides a summary of the mismatches based on the two flag variables. Considering that our target age groups tend to be mobile, and that the Ministry of Interior's register (our sampling frame) is not updated in real time, it is likely that we missed some residential moves within Croatia. People may not immediately register their new place of residence. Some individuals might live as tenants in other cities while still being registered at their parents' homes, which can lead to discrepancies in official records. When examining Flag 2 and excluding missing data, the mismatch between the gross and net samples is quite low (only around 2%). Some level of missing data is always expected in surveys. A small portion of respondents might have provided unreliable answers or may not be the intended participants, but given the rather low mismatch rates indicated by the flags, this should not significantly affect the representativeness of the data.

Table 8: Distribution of Data Mismatches Between Net and Gross Samples by Flag Variables

	Flag 1		Flag 2	
	N	Share	N	Share
Full net sample				
Matches (flag variable = 0)	6,917	92%	7,205	96%
Mismatches (flag variable = 1)	570	8%	282	4%
Total	7,487	100%	7,487	100%
Excluding missing data in the net sample on month or year of birth, gender, or region				
Matches (flag variable = 0)	6,917	94%	7,205	98%
Mismatches (flag variable = 1)	454	6%	166	2%
Total	7,371	100%	7,371	100%

The discrepancies between the net sample and the census data, especially in terms of education, region, and gender (see Table 7), illustrate the need for post-stratification weights to adjust the sample to better represent the target population, compensating for these imbalances. The gross sample for the Croatian GGS was drawn randomly, by the Ministry of Interior from their Registry, meaning every individual had an equal chance of being selected. This eliminates the need for design weights, as there are no over- or

underrepresented segments due to the sampling method itself. However, post-stratification weights are still necessary: they are used to adjust for differences between the net sample and the target population, particularly when response rates vary among different groups, known as selective response. This variation can introduce bias into the survey results, making them unrepresentative of the broader population.

The 2021 census data were used as benchmark data to create weighting targets that reflect the population distribution by age, gender, education level, marital status, and region. Population counts from the 2021 census were prepared by the Croatian Bureau of Statistics in the form of a cross-classification of all five variables. The Central Hub distinguished the following categories for the key variables when calculating post-stratification weights: age (18–30, 31–45, 46–54 years), gender (male and female), education level (low: ISCED 0–2, medium: ISCED 3–4, high: ISCED 5+), marital status (ever married versus never married), and region (NUTS2: Adriatic Croatia, City of Zagreb, Northern Croatia, Pannonian Croatia).

For some respondents, the data in the net sample were missing for the key variables used in weighting. The Central Hub assigned a weight of 1 to these respondents after trying different procedures to assess how the distribution of the key variables differed by procedure and compared to the population distribution. Specifically, the following strategies were considered:

- assigning a weight of 1 to those with a missing value on any one of the key variables (as appearing in the data release)
- using multiple imputation to impute the missing values for each of the key variables
- using different classifications when calibrating the weights so that those with a missing value receive a more meaningful value than 1

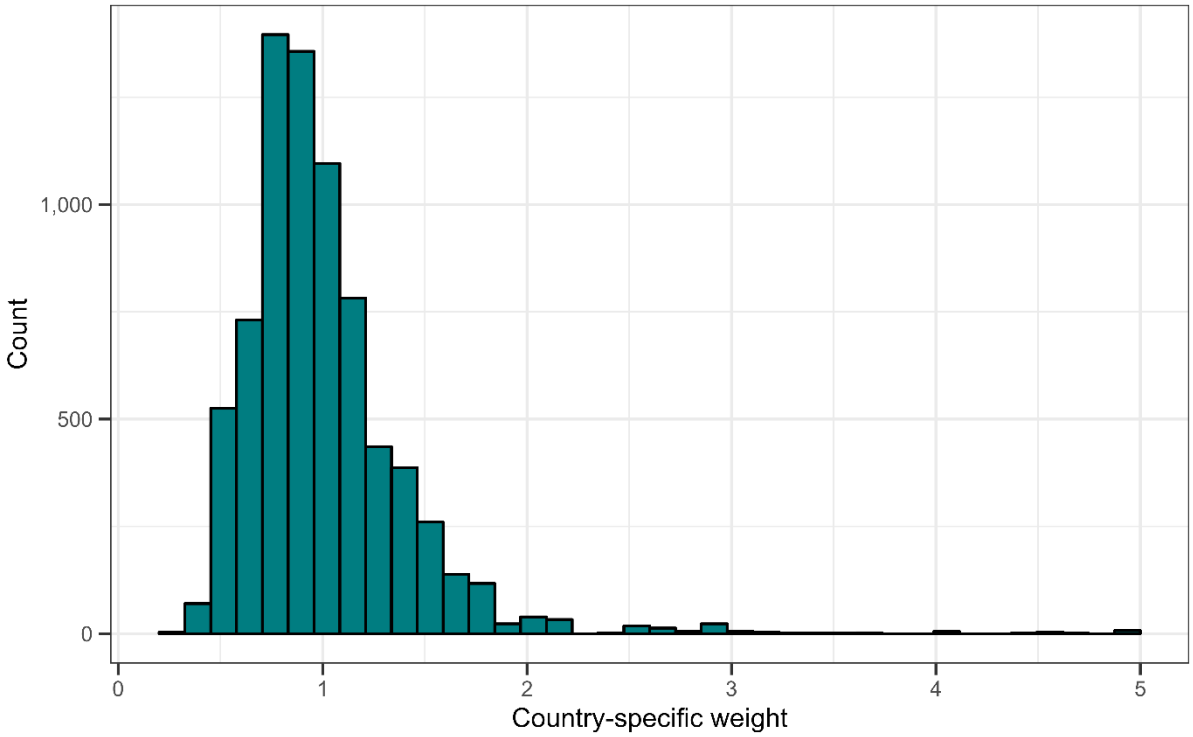
The results indicated that there was not much difference in the outcomes, whether those with a missing value were assigned a weight of 1 or a more meaningful value. This is likely because the proportion of the sample with missing values was relatively small. Based on discussions within the methods group, it was decided that if the share of missing values is high (exceeding 1%) for any one variable, multiple imputation should be considered. Additionally, if the overall share of missing values is not higher than 5%, the missing values can be accepted.

We calculated country-specific post-stratification weights using a broader range of age and education categories than those used by the Central Hub. Even though the checks by the Central Hub suggested that the impact of missing values might be small, we chose to address the problem of missing data with imputation. The exact categories of key variables used for the calculation of country-specific weights are outlined in Table 7, alongside the number of imputed missing values (with the exception of region, as indicated below). Our procedure was as follows:

1. If region was missing, we used data from the gross sample for respondents whose data on month and year of birth and gender matched between the net and gross samples. This approach allowed us to fill 103 out of 113 missing values for region.
2. Having done that, we used imputation to assign plausible values for other key variables. In total, 397 observations in the net sample were marked incomplete (5.30%). Due to the relatively small amount of missing data, we opted for single imputation as a practical and straightforward solution, avoiding the need for more complex imputation techniques. We performed the imputation in STATA using chained equations and predictive mean matching with 5 nearest neighbours to impute missing values for age, education, marital status, and region (there were no missing data on gender, but gender was still used to impute other values), generating one imputed dataset (with a specified random seed for reproducibility).

3. We calculated post-stratification weights using the imputed variables, employing the same procedure as the Central Hub, i.e., using iterative proportional fitting, or raking, to produce a set of calibrated survey weights so that the sample weighted totals of the key variables optimally align with the population totals from the 2021 census. To avoid extreme weight values, we applied trimming, setting the same lower and upper bounds as the Central Hub. We performed all calculations in STATA, utilizing a user-written *ipfraking* package (Kolenikov, 2014). Figure 8 shows a histogram of the country-specific weights for the Croatian GGS.

Figure 8: Histogram of Country-Specific Weights for the Croatian GGS



We recommend using the country-specific weights calculated by the national team because they offer greater granularity in age and education categories and handle missing data through imputation, providing a more representative and accurate reflection of the target population.

Conclusion

Conducting the GGS in Croatia is very important due to the need for high-quality survey microdata that provides evidence-based insights into population dynamics, family changes, work-life balance, and the economic, social, and cultural contexts. This survey is especially crucial for countries like Croatia, which lack comparative data and require adequate family policies, particularly in light of constrained fiscal resources.

The web-based nature of the survey required that every element of communication with respondents be visually appealing. The NFP invested significant efforts to ensure that the appearance of the invitation letters, reminders, and landing page would captivate respondents' interest to participate in the survey. We had close cooperation with the GGP Central Hub in this regard. Compared to some other countries that conducted the GGS, there is an advancement in the visual context of the entire study approach.

We opted for unconditional cash incentives as the GGP Pilot conducted in 2018 showed they can boost response rates by providing immediate rewards and fostering a sense of reciprocity and value among participants. Last but not least, the success of the first wave of the survey can also be partially attributed to web campaigns organized by the CSODY, carried out through Facebook and Instagram, and advertising campaigns in local media outlets. This overall strategy, incorporating these steps, led to the highest response rate among all countries that used CAWI mode, laying a robust foundation for the second wave of the GGS. Looking ahead, significant challenges remain for future waves, particularly regarding survey attrition. It will be crucial to develop the most effective panel care strategies to minimize attrition as much as possible.

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