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Pandemic Distress and Anti-Immigration Sentiments

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Abstract

We investigate the causal nexus between pandemic distress and anti-immigration sentiments. We exploit the disruption brought about by the Covid-19 outbreak to randomly provide survey respondents with information on the economic or health consequences of the pandemic. Overall, we find that pessimistic information about the economic outlook reinforces overall adversity to immigration and the wish to exclude immigrants from access to health care. This effect is less pronounced in areas with larger immigrant populations. Our theoretical model pins down two possible mechanisms explaining these results: a zero-sum game to split scarce public resources between residents and immigrants on the one hand and, on the other, fear of contagion.

JEL classification Codes: D72, H51, H53, H55, O52, P52
Keywords: Economic Crisis, Health crisis, Immigration, Survey Experiment, Radical Political Attitudes

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1 Introduction

Immigration plays a central yet controversial role in the current socio-political and cultural debate. Even though immigrants have contributed significantly to sectors where native labour supply was scarce, political parties and platforms endorsing anti-immigration positions are on the rise.[1] A fundamental question is then whether this is due to purely *material* distress, which can be economic or physical, or is more related to cultural anxiety or shifting social paradigms.[2] If material distress is shown to play a role, as it has in certain contexts, a second question becomes whether the nature of distress matters. A combination of economic insecurity and a health scare for example, as embodied by a pandemic crisis, could lead to different views on immigration than a purely economic shock. Such a combination may also affect views on the public provision of specific services to immigrants, such as health care.[3]

To study how different kinds of material distress can affect attitudes towards immigration, we model a society that is split into two groups: natives and immigrants. Natives are richer than immigrants and have more political rights, so they can limit immigration inflows or grant themselves more exclusive access to public goods, such as health care. Immigrants are poorer, and consequently run a higher risk of contracting diseases (because they realistically do jobs that are more exposed to contagion) and infecting natives. Lastly, we assume that natives are fully self-interested when considering immigration.[4]

We then introduce two shocks to capture two different kinds of material distress: an economic shock and a health shock. We study how these affect natives' willingness to limit the inflow of immigrants and their access to health care, which are the two dimensions of anti-immigration attitudes we are interested in. We also study natives' attitudes toward public spending, and health-care spending specifically.

Firstly, a worsening economic outlook (a negative income shock) presents natives with a trade-off when it comes to health care provision. On the one hand, a poorer society has higher contagion risks so natives will want to have more health care for themselves. On the other hand, this kind of 'ring-fencing' will increase contagion risk even more because immigrants will receive

less medical treatment. Native preferences for prioritizing health care will hence depend on the relative strength of these two countervailing effects. We show below how we empirically tackle this puzzle.

A second question is whether an economic shock affects natives' attitudes towards overall immigration as well. In line with current empirical evidence, the model assumes that natives are richer when immigration is higher, at least to some extent. Consequently, a negative income shock brings about a second trade-off. On the one hand, natives want fewer immigrants since the marginal beneficial effect of immigration on native income is lower during economic downturns. On the other hand, natives become more favourable towards immigration as they also have to pay fewer taxes to finance immigrants' use of health care and public goods when income declines. Again, whether a negative economic shock results in stronger anti-immigration sentiment is an empirical question that we try to address.

Third, we also study how a health shock (parametrized by pandemic severity) affects our two anti-immigration dimensions (i.e., health-care prioritization and overall desired immigration levels). As for prioritization, the trade-off lies between the benefits of prioritized treatment for natives on the one hand, and lowering contagion risk for immigrants on the other. The model shows that if the health shock has a larger impact on contagion risk than on the risk of falling seriously ill, natives will want more health care for themselves in order to guarantee proper treatment in the (very likely) event that they are infected. As for overall immigration, the health shock produces another trade-off, now between the higher risk of getting infected when there are more immigrants in the country on the one hand, and better access to medical treatments because the country is richer on the other. If the former effect is stronger, natives will be less open to immigration following a health shock.

In sum, how an economic or a health shock affects anti-immigration sentiments will depend on the relative size of different countervailing effects. To evaluate them empirically, we designed an online survey experiment around the context of the Covid-19 shock, which we then interpret through the lens of our model. We chose a pandemic shock precisely because it combines economic and health-related aspects of material distress, thus allowing us to disentangle the

two kinds of distress not just from each other, but also from other possible drivers of xenophobic and nativist attitudes. The pandemic was indeed an exogenous and unanticipated shock to the whole social and economic fabric, exposing individuals to unprecedented levels of physical and economic insecurity (Daniele et al., 2020a; Fetzer et al., 2020). Importantly, and precisely due to this "natural" origin, the consequences of the pandemic could not, especially at the time, credibly lend themselves to the traditional anti-immigrant radical rhetoric addressing local minority groups.[5]

We exploit this empirical advantage by running a survey experiment on a sample of 6,014 individuals in Italy, first among the European economies to experience the dramatic impact of the Covid-19 outbreak. In its earliest days, the epidemic gripped the country's north quickly and unexpectedly, wreaking havoc in the public health system as well as in the civil society.[6]

Moreover, because the Covid-19 shock was precisely a combination of both a health and an economic crisis, we can empirically explore how health concerns might have affected attitudes towards migration alongside economic concerns, as suggested by our theoretical framework. The question of how to allocate public funds between natives and immigrants to ensure accessible health care becomes topical in this framework. In our experimental design we therefore include both the health and economic dimensions.[7] Of course, the Covid-19 shock was mostly a health crisis in its earliest stages, with the potentially catastrophic economic consequences only starting to loom large in April 2020. We therefore conducted our experiment well into the first wave of the pandemic, in June 2020.

Our experimental design contrasts attitudes towards immigration in the socio-economic environment of early June 2020 with attitudes which might have been observed had the pandemic not occurred, or had it had a much weaker impact. We thus build a $2 + 2$ experimental design investigating two distinct dimensions along which the pandemic exerted its effects. The first dimension varies whether the Italian *economic* outlook for 2020 is presented in an optimistic or pessimistic light. The second dimension repeats the exercise for the Italian *health* outlook for 2020. In both cases, the respondents received the experimental condition information via videos embedded in the online survey.

In order to obtain a conservative proxy for the optimistic economic scenario, we use the early GDP projections for 2020 published by the OECD at the beginning of March 2020. Because they were constructed before the full impact of the pandemic materialised and could be accounted for in their formulation, these projections allow us to expose a randomly selected group of our respondents to an (at least ex-post) *optimistic* economic scenario in which the pandemic had virtually no effect on the economy (-0.5% relative to 2019).[8] We then construct a comparison group by providing another portion of our sample with the far bleaker, ex-ante *pessimistic* (and ex-post much more realistic) economic scenario depicted by the Italian GDP projections published by Goldman-Sachs in early April 2020 (-11.2% relative to 2019).[9] We do not claim that the responses elicited from respondents provided with the optimistic OECD scenario actually are the ones that would have been observed had the pandemic truly had a limited impact. Nevertheless, their comparison with the responses under the pessimistic Goldman-Sachs scenario offers a lower bound for the difference between the attitudes measured under the actual socio-economic environment in the early summer of 2020 and those that would have been measured had the crisis not taken place.

Next, we build our experimental conditions for the health dimension of the epidemic by providing our respondents with information about the excess mortality measured by the Italian Ministry of Health in selected Italian cities since the onset of the epidemic.[10] By varying whether the information we provide concerns major Italian cities which experienced the greatest or the lowest excess mortality, we are able to vary whether the health impact of the crisis is presented under a pessimistic or an optimistic light. Despite the economic and health information treatments not being directly comparable in terms of magnitude of their effects, we can safely evaluate the presence and the direction of their impacts on our sample's responses in search for qualitative similarities.

We find that under both pessimistic scenarios individuals are more likely to agree that public health care should prioritise native Italians. The economic outlook is shown to display the stronger and most significant effect, surviving all corrections for multiple hypothesis testing.[11] Along the lines of our theoretical framework, this finding could be explained by natives' percep-

tion that contagion risk is larger in poorer societies, in turn increasing own infection risk and thus raising the importance of prioritising health care for natives. A second possible implication is that respondents downplay the risk of under-providing health care to the immigrant population during a pandemic, and are hence not too worried about direct infection by migrant subgroups.

Second, we observe an increase in the agreement with the statement that overall immigration is too high, entirely driven by the pessimistic economic outlook. Through the lens of our model, this finding could be explained by the positive income effect of migration outweighing the contribution to public spending on immigrants. Because the economy is smaller overall in the pessimistic scenario, the economic gains from a larger immigrant population are proportionally smaller compared to richer, more productive societies. Hence, immigrants are less welcome during economic downturns.

Third, we find that the impact of the pessimistic economic outlook seems to be *mitigated* in provinces with a higher immigrant presence. Indeed, both overall aversion to immigration as well as the importance placed on native health care priority are reduced when interacted with the number of immigrants in a respondent's province. These results are in line with Steinmayr (2020), who finds a mitigating effect of contact with immigrant populations on anti-immigration sentiments. Following our model, the prioritisation result could be explained by a larger apprehension of contagion risks. If a higher presence of immigrant subgroups increases perceived infection risk from that source, under-provision of health care to immigrants becomes more risky for natives. It could however also mean that other channels, such as altruism or xenophobia, not included in our purely rational model, play a role here. For instance, the *contact hypothesis* (Allport, 1954) posits that intergroup contact can reduce prejudice between natives and immigrants.

Lastly, we find that, while our intervention shapes anti-immigration attitudes, it has no impact on respondents' voting intentions. We observe no significant increase in the probability of expressing political preferences for populist parties and explicitly nativist platforms once individuals are provided with pessimistic information about the economic consequences of the crisis.

We conclude that pandemic crisis awareness exasperates anti-immigration sentiments, an effect which is predominantly due to economic distress.

The paper proceeds as follows: Section 2 reviews the related literature, Section 3 describes the survey and its experimental component, Section 4 presents our theoretical model, Section 5 illustrates how our model is tested using our survey experiment, Section 6 describes our empirical and analytical strategies, Section 7 presents our results and Section 8 concludes.

2 Related literature

Our results are in line with recent literature showing that a pandemic can erode social trust and cohesion (Daniele et al., 2020a; Brück et al., 2020; Amat et al., 2020; Aassve et al., 2020). Although the Covid-19 pandemic can be perceived as a common threat requiring cohesion and unity, we show it has instead increased the perception of a social divide between natives and immigrants, especially in relation to its economic dimension.

In this light, our paper is also related to the literature documenting the impact of economic conditions on socio-political attitudes. For instance, Guiso et al. (2020), Bellucci et al. (2019), Dehdari (2019) and Gidron and Mijs (2019) document an increased demand for radical right parties in connection with worsening economic circumstances. Fetzer (2019) shows that economic austerity in the United Kingdom radicalised political preferences to the point of by themselves causing the victory of the *Leave* camp in 2016. Margalit (2013) uses a four-years longitudinal study covering the years immediately preceding and following the great recession to uncover a strong effect of individuals' job market situation on their support for social welfare policies.

Other studies, often relying on correlational macro-evidence and comparing attitudes across countries or time, have linked economic strain to upsurges in anti-immigration sentiments. The contraction of economic output and labour markets during the 2008 great recession has been correlated with increased anti-immigration sentiments (Dancygier and Donnelly, 2013; Polavieja, 2016; McGinnity and Kingston, 2017; Vogt Isaksen, 2019). Hatton (2016) finds that anti-immigrant sentiment is positively correlated with the share of social benefits in GDP and with the size of the immigrant population, but only weakly with unemployment rates, in times of reces-

sion. Brader et al. (2008) show that triggering fear and anxiety over the economic consequences of (especially low-skilled) immigration strengthens opposition to immigration. Hainmueller et al. (2015) find that labour market concerns do not significantly impact attitudes towards immigration and immigration policies. Concerning the relationship between individuals' income and their attitudes towards immigration, Facchini and Mayda (2009) argue that competition over public resources and services as well as the financing burden drive the relationship between pro-immigration sentiments and income, negative (positive) in countries attracting relatively unskilled (skilled) immigrants.

Immigrant presence itself has also been observed to directly impact political preferences, causally determining the rise of radical political parties (Otto and Steinhardt, 2014; Barone et al., 2016; Halla et al., 2017; Harmon, 2018; Norris and Inglehart, 2019; Dustmann et al., 2019). Opposite findings are instead uncovered by Vertier et al. (2019), Gamalerio et al. (2023) and Steinmayr (2020). Facchini et al. (2016) conduct a large scale survey experiment in Japan to find that information about the expected social and economic benefits of immigration significantly increases support for more open immigration policies. Colantone and Stanig (2018) and Nicoli et al. (2022) find that the "leave" option in the Brexit referendum was selected more frequently in regions that were more exposed globalisation, particularly in connection with eastern European immigrant presence and the local importance of eastern European imports. Increases in immigrant presence explain leave-voting in Goodwin and Milazzo (2017). van der Brug and Harteveld (2021) observe a polarising effect of the 2014-2016 migration waves on anti-immigration sentiments of left- versus right-leaning European citizens, except in the southern "arrival" countries.

Straddling the two strands of literature, Georgiadou et al. (2018) find that both economic insecurity and cultural shocks due to upsurges in migration lead to strengthened political preferences for, respectively, far-right extremist parties and populist radical parties. Similar findings are reported in Nicoli and Reinl (2020). Carreras et al. (2019) find that anti-European and anti-immigration cultural factors driven by economic shocks mediate the relationship between local economic performance and leave-voting.

We further link to literature investigating the impact of racial fragmentation on healthcare policy preferences (Bhopal, 2007; Williams et al., 2008). For instance, Harell and Lieberman (2021) investigate how the provision of information on Covid-19 death rate disparities between blacks and whites affects individuals' support for more aggressive public health response. They find that while previously unaware blacks and whites with friendlier attitudes towards blacks increase their risk awareness and support for concerted public policies, the opposite holds true for whites with colder racial attitudes.

Our study contributes to the growing body of research on Covid-19, particularly focusing on its spread and impact in Italy. Ascani et al. (2021) delve into the geographic aspects of Covid-19 within Italy, highlighting how localized economic activities serve as conduits for disease transmission. Bloise and Tancioni (2021) utilize machine learning techniques to analyze the territorial drivers of pandemic spread, revealing that economic activity intensity played a significant role during the initial wave in March 2020, though its influence diminished following the lockdown of the economy, indicating pandemic mitigation. They also affirm the correlation between epidemic distribution and economic factors. Borsati et al. (2023) investigate the link between worker mobility and disease spread, demonstrating that a reduction in commuting could have substantially decreased the number of deaths during the first wave of the pandemic in 2020. Cerqua and Letta (2022) employ machine learning to show that the economic repercussions of the pandemic varied widely across Italy, independent of the epidemiological trends during the first wave. Notably, areas with high social aggregation risks and existing labor market vulnerabilities experienced the greatest employment losses. Bonaccorsi et al. (2020) examine the effects of lockdown measures based on socioeconomic factors in Italy. Leveraging Facebook mobility data, they demonstrate that municipalities with greater fiscal resources and lower per capita income experienced more significant reductions in mobility. Their findings suggests that the pandemic has disproportionately impacted economically disadvantaged individuals residing in municipalities with strong fiscal capacity. Galeazzi et al. (2021) compare the impact of lockdown measures in France, Italy, and the United Kingdom using national mobility using data from 13 million Facebook users. Their study reveals that lockdowns resulted in a shift towards localized, short-distance mobil-

ity patterns rather than international travel. However, there were variations in mobility trends among the three countries. In France and the UK, mobility tended to be concentrated around large urban centers, effectively limiting transmission by reducing interactions between urban and rural areas. Conversely, in Italy, the population's distribution across interconnected clusters around major cities facilitated ongoing virus spread despite lockdown measures. Durante et al. (2021) investigate the role of civic values in shaping mobility patterns across Italian provinces during the first wave of the pandemic. They find that, following the onset of the virus outbreak, mobility decreased across all regions, with a more pronounced decline observed in areas characterized by higher levels of civic engagement. This trend persisted both before and after the implementation of a mandatory national lockdown. They estimate that if all provinces exhibited the same level of civic capital as those in the top quartile, the number of Covid-related deaths could have been reduced by approximately 60%.

A growing body of research highlights the unequal impact of Covid-19 across genders and races in OECD countries. Women and racial minorities, notably African-Americans and Latinos, have borne a disproportionate burden (Adams-Prassl et al., 2020; Forsythe et al., 2020). Contrary to prior economic crises, Covid-19 has disproportionately affected women's labor market outcomes, with employment concentrated in sectors like healthcare and education (Alon et al., 2020). Latino groups in the US have been disproportionately affected by unemployment shocks due to unfavorable occupational distributions and lower skill levels (Couch et al., 2020). Immigrant men experienced a greater fall in employment rates compared to native men, attributed to their lower likelihood of holding remote-friendly jobs (Borjas and Cassidy, 2020). In the US, racial and ethnic minorities faced higher unemployment rates during the pandemic (Montenovo et al., 2022), and (McLaren, 2021) shows that minorities' population shares correlated strongly with Covid-19-related deaths, which can be partially attributed to differences in public transit usage. Using survey experiments in Spain, Italy, and the UK, Codagnone et al. (2021) show that the Covid-19 shock and subsequent lockdown led to pessimism regarding job opportunities, increased depletion of savings, and strained social relations, potentially impacting long-term employment prospects. The authors suggest that current fiscal policies may not adequately ad-

dress these concerns and urge policymakers to develop contingency plans for exiting lockdowns, encompassing both post-lockdown expenditures and public health strategies to address potential future waves of Covid-19.[12]

Lastly, and insofar as the health-related distress of the Covid-19 pandemic ties into emotional responses such as fear, our paper also relates to Campante et al. (2020), who show that heightened concerns about the Ebola outbreak in 2014, measured by online activity and location of the four cases diagnosed in the U.S., boosts anti-immigrant sentiment amongst other direct electoral effects. To the extent that anti-immigration sentiment corresponds with conservative political views, Beall et al. (2016) find similar effects of the Ebola outbreak. A growing literature finds that the Covid-19 pandemic has also amplified xenophobic sentiments, particularly towards Asian communities. Tahmasbi et al. (2021) observe a surge in Sino-phobia online with the onset of Covid-19, particularly as Western countries began to display infection signs. Bartos et al. (2021) demonstrate how economic hardships during the pandemic exacerbate hostility towards specific ethnic groups, in particular Asians, in a survey experiment in the Czech Republic.

3 The Survey

We hired the professional survey company Demetra to distribute the link to our online survey to a sample of 6,014 adults representative of the Italian resident population in terms of geographic area of residence, age and gender.[13][14] Table D5 in Appendix D.2 shows that population and sample frequencies across these variables are indeed similar, reassuring us that we managed to reach our target quotas. We moreover tried to achieve a distribution of equivalised disposable household income as close as possible to the one provided by Eurostat.[15] Population size and immigration data at province level come from the Italian Statistical office (ISTAT).[16][17] The survey was distributed during the first two weeks of June 2020. The English survey questionnaire was translated to Italian by the native-speaking authors.[18]

The survey flow was structured as follows:

Background information Gender, age, marital status, household size (number of adults and number of children), household monthly disposable income (equivalized).

Information conditions The respondents randomly viewed one out of four information videos portraying either the economic or the health situation in Italy in an optimistic or in a pessimistic light. The information conditions are described in detail in Section 3.1 and in Appendix C. Immediately after having seen the information videos, the respondents were asked to restate the key information provided. This way we reinforce the manipulation by making sure that the information is taken in (the respondents could re-play the video any number of times).

Outcome questions We investigate the respondents' (anti-)immigration sentiments and perceived appropriateness of the tax burden in Italy. The list of outcome variables is reported in Table 1. We embedded the elicitation of the core outcome variables for this paper as part of a broader survey data collection which included 40 outcomes. While this paper is the only intended outcome of the project, the advantage of this strategy is that of obfuscating the purpose of the survey, thus limiting the insurgence of potential demand effects (see, e.g. Haaland et al., 2020).[19][20]

Core outcome variables	**Label**
Public health services should be reserved to Italians	Native health care
The State should levy taxes to provide health coverage	Health care
The general tax burden is too high	Tax burden
The current level of immigration is too high	Anti-immigrant
Voting outcomes	**Label**
Anti-immigrant vote intentions	Anti-immigrant voting
Populist vote intentions	Populism voting
Incumbent vote intentions	Incumbent voting

Table 1: List of outcome variables

Core outcome variables Our core outcome variables directly address our main research question: Do anti-immigration sentiments surge in times of socio-economic distress compared to times of relative stability? In order to answer such question, we ask our respondents to provide their answers to the following two questions: "*On a scale from 1 to 10, do you think the current immigration level in your country is too low (1) or too high (10)*", and "*On a*

scale from 1 to 10, how much do you think the public healthcare system in your country should prioritise Italians over immigrants? (1=not at all, 10 = a lot)". The first question captures the respondents' general attitude towards immigration, while the second captures their attitudes towards immigrants in connection with their usage of public health care resources. We feel that given the dual nature of the current crisis, economic as well as health, as discussed in Section 1 (Daniele et al., 2020a), such distinction is important to obtain a measure of individuals' general attitudes towards the immigration phenomenon untainted by the nature and causes of this particular crisis (an epidemic).

Moreover, we elicit the respondent's perception of the appropriateness of the economic size of the government via the following question: "*On a scale from 1 to 10, do you think the fiscal burden in Italy is too low (1) or too high (10)?"* Given the public character of healthcare in Italy and in light of the link established by previous literature between the size of the welfare state and anti-immigration attitudes (Hatton, 2016; Fetzer, 2019), we investigate whether our interventions cause a shift in individuals' preferred size of the government. Should this be the case, we would have an indication of a possible mechanism behind the nexus between the crisis and (anti-)immigration sentiments.

Furthermore, we elicit the respondents' attitude towards tax-financed public health care provision via the question *"On a scale from 1 to 10, do you think the government should levy taxes to ensure adequate health care? (1= not at all, 10 = a lot)"*.[21]

Voting outcome variables The survey also includes a question on self-reported voting intentions. Specifically, we ask which party they would vote for if the national elections were coming up the following Sunday. We then construct a binary indicator of anti-immigrant political preferences based on the Chapel Hill Expert Survey of 2019 (Jolly et al., 2022), ranking parties according to their immigration policy stance (from strongly liberal, coded 0, to strongly restrictive, coded 10). We take a score of 5 as conservative cutoff to classify a party as having an anti-immigration stance. We thus identify individuals who stated voting intentions for "Lega" (score=9.95), "Fratelli d'Italia" (score=9.84), "Forza Italia" (score=7), and "Movimento

5 Stelle" (score=6.5) as politically opposing immigration.

Similarly, we construct a binary indicator of populist political preferences. We use the information in the "People vs. Elite" question, ranking the parties' position concerning direct vs. representative democracy on a scale going from 0 (i.e. elected office holders should make the most important decisions) to 10 (i.e. "the people", not politicians, should make the most important decisions). We again take a score of 5 as a conservative cutoff. We thus identify individuals who stated voting intentions for "Lega" (score=6.93), "Movimento 5 Stelle" (score=9.53), "Fratelli d'Italia" (score=6.62) as political populists.

Finally, we construct an indicator identifying respondents who state they would vote for the incumbent political parties, i.e."Partito Demcratico" and "Movimento 5 Stelle".

Further demographic background information We elicit participants' highest educational attainment, employment status and immigration background.

Debriefing At the end of the survey, the respondents reached a debriefing screen. There, they received complementary information to the one they had received during the survey as part of the experimental manipulation. Respondents in the economic conditions were told that many agencies release GDP forecasts, one of which being the one they were given during the survey, and were then given the one they did not receive. Likewise for the health conditions. This way we ensure that no respondent was left with a distorted picture of the current economic and health situation in Italy.

3.1 Experimental Conditions

Our respondents were assigned to four non-overlapping groups, each of which was exposed to only one of the four information conditions. Assignment to each group was random and performed by the survey engine Qualtrics immediately before the delivery of the experimental conditions. As condition assignment was random, the sample splits in each condition can be taken as a random experimental condition assignment from a representative population. Table D3 in Appendix D.2 shows that randomisation was successful with only few and expected statistically significant

differences across conditions due to sampling variability. Each information condition presented the respondents with either the pessimistic or optimistic (our active control group) information, about the economic or health consequences of the epidemic. The information was provided by means of short information videos directly on the respondents' screen.[22] Notice that because the very different nature of the two health and economic aspects of the epidemic makes the two hardly comparable with each other, we keep them separate and measure the impact of receiving pessimistic information in one of either the health or economic dimension relative to the impact of receiving optimistic information in the *same dimension*. That is, we refrain from comparing the analogous optimistic or pessimistic information across the economic and health dimensions, or from comparing their respective within-dimension effects.

Moreover, we refrained from presenting two pieces of information from different dimensions in a single information condition. First of all, this choice reduces the risk of overburdening the respondent, and hence maximises the impact of the single piece of unambiguously optimistic or pessimistic information provided. Second, it reduces the risk of unwanted effects which could have potentially masked the impact of the dimension of interest, e.g. the effect of pessimistic information in the health domain might have been obscured by a level effect induced by the simultaneous presentation of the economic information even if held constant. Even more problematic, the simultaneous presentation of pessimistic information in one domain and of optimistic information in the other would have made teasing any meaningful information insight out of the data extremely difficult due to the many confounding forces at play.[23] For these reasons, we deliberately chose to keep the two dimensions strictly separate.

With the aim of providing the respondents with unambiguously optimistic or pessimistic information and thus of maximising the impact of the two, we accompany our information treatments about the current situation with intuitive benchmarks the respondents could immediately understand and relate to based on their direct experience. For the economic dimension, we contrast the pessimistic or optimistic estimate for the 2020 drop in GDP with the drop in GDP experienced in 2009 due to the onset of the financial crisis. For the health crisis, we compare the current mortality in Italian municipalities where the Covid-19 death toll had been either

extremely severe or relatively small in the first few months to that expected in the same municipalities based on the five previous years (this comparison is commonly referred to as excess mortality). These benchmarks allow our experimental conditions to convey as much as possible a sense of unambiguous optimism or pessimism regarding the Italian outlook on the two dimensions.

We moreover refrained from eliciting respondents' prior beliefs about the economic or health situation in Italy. First of all, we expected our information conditions, which compare our pessimistic information condition against an optimistic active control condition, to widen our respondents' perception gap in opposite directions (respectively, optimistically and pessimistically), thus limiting the scope for average treatment effects to vary with prior updating (Haaland et al., 2020).

Further, eliciting numerical beliefs about GDP or mortality forecasts from lay people would have provided limited information about their true perceptions. Not everyone understands how GDP is calculated and how it is affected by worldwide events, and producing informed estimates is hard even for professionals. It is our view that great caution should be exercised in using beliefs about economic (or other) variables to interpret the effects of experimental variation. Asking respondents for a guess about a phenomenon which they at best poorly understand will likely result in a large amount of noise in the belief distribution. The reader should recall the situation the world was facing back in the first half of 2020, when this study was being designed: Forecasts concerning the duration and the effects of the then incipient pandemic were hard to produce and understand, as testified by the widely different estimates produced by rating agencies and governmental study groups. That uncertainty and its product were communicated to the public by news agencies and institutional press offices.[24] These considerations led us to avoid the collection of subjective guesses of limited informative value, especially in view of the risk of their elicitation potentially introducing heterogeneous and hardly controllable unwanted effects (e.g. demand effects, primes, anchoring, consistency seeking).

Finally, an ex-post consideration is that the optimistic conditions might seem unrealistic to a reader aware of the severity of the pandemic in the last months of 2020 and later in 2021,

which would lead them to interpret the two conditions a contrast between realistic (negative) vs. an unrealistic (positive) information. However, the same reader should bear in mind that in June 2020 Italians were concerned about the pandemic while retaining some optimism about the future. General sentiment back then is best captured by optimism and pessimism rather than by realism, an ex-post attribute of the information circulating at the time in the light of the circumstances that realised later in the same year. An Italian survey institute (IPSOS) in fact surveyed the Italian population about the pandemic twice a month since March 2020. In June 2020, only 33% (40%) of Italians considered the epidemic as a threat for themselves (for their community). Conversely, in March 2020, 53% (73%) of Italians considered Covid-19 a threat for themselves (for their community). In June only 16% believed that "the worst had yet to come". Similarly, economic concerns were not particularly high, as only 7% believed a new lockdown (with firms being forced to shut down) was plausible in the future, and only 33% were more concerned about economic consequences than health ones: this is remarkable as health concerns were themselves not very high.[25]

The following paragraphs describe our conditions in detail.

Economic dimension In the economic dimension we varied whether our respondents received overly optimistic or overly pessimistic (ex-post, realistic) outlooks about the Italian economy for the year 2020.

Pessimistic economic condition The respondent was given information about the projected GDP drop (-11.2%) computed in April by Goldman-Sachs for 2020. To allow the respondent to get a better feeling of the meaning of such information, it was placed in relation to and compared with the GDP drop experienced by the Italian economy in 2009 as consequence of the financial crisis (-5.7%). These pieces of information were provided both in words and graphically.

Optimistic economic condition The respondent was given information about the projected GDP drop (-0.5%) computed in February by the OECD for 2020. As in the pessimistic condition, this information was provided in comparison with the GDP drop in 2009 (-5.7%). Again, these pieces of information were provided both in words and graphically.

Health dimension In the health dimension we varied whether the respondent received pessimistic or optimistic information about the epidemic's death toll in selected Italian cities.

Pessimistic health condition In this condition, we informed the respondents about the difference (in percentage terms) between the number of expected deaths based on the previous five years and the number actually observed since the onset of the epidemic in selected Italian cities. In particular, we showed the participants in this condition that in some Italian cities, the actually observed number of deaths had been much higher since the beginning of the epidemic (Aosta, +126%, and Brescia, +195%) than the expected number of deaths forecast by the Ministry of Health (based on the actual number of deaths observed in the same period in the previous five years), and that a similarly large difference in actual compared to expected deaths had been observed in many other Italian cities. The city names were omitted from the information videos to avoid inducing territorial primes in the respondents.

Optimistic health condition In this condition, we informed the respondents about the difference (in percentage terms) between the number of expected deaths based on the previous five years and the number actually observed since the onset of the epidemic in selected Italian cities. In particular, we informed participants that in some Italian cities the difference between the expected and observed number of deaths was small (Rome, +5%, and Palermo, +2%), and that a similarly small difference in actual compared to expected number of deaths had been observed in many other Italian cities. Also in this case the city names were omitted to avoid inducing territorial priming.

4 A Model of Immigration & Health

In this section we present a model that systematizes the ideas studied in this paper. The aim is not to propose a general and exhaustive theory of anti-immigration sentiments, but rather that of offering a reference framework to grasp the mechanisms connecting the different variables that we explore empirically in our survey.

There are many reasons why anti-immigration sentiments are widespread in a society, from

bare xenophobic racism, to cultural identification, to purely material calculus. In this model we focus only on material factors. The starting point is that immigrants are different from natives in two main dimensions. First, immigrants are (perceived to be) poorer.[26] Second, immigrants can be stopped at the border or, due to limited political rights, they can be excluded from public health care with the intent of making more resources available to natives. "How many immigrants to allow in our country" or, once they are in, "Which type of access they are granted to public services" are two resulting and obvious policy questions capturing anti-immigration sentiments over which natives might have differing views.

In our model, a citizen's anti-immigration sentiments will be captured precisely by the two above-mentioned dimensions: first, her opinion about possible priority to be given to native citizens in dividing scarce resources (like health care); second, her opinion about the appropriate number of immigrants to be allowed in the country. The question is then whether and to what extent these opinions are affected by economic and health shocks.

We assume there are two groups in society: residents (or natives, indexed by r) and immigrants (indexed by i). The population size is one, and n denotes the share of immigrants. As mentioned earlier, n will be a policy decision and will capture one dimension of residents' anti-immigration sentiments.

Immigrants are poorer. Their average income is $y_i = y_r(1 - s)$, where y_r is the resident's average income and s is a positive parameter capturing income inequality. As we will see, income inequality between residents and immigrants captures material motivations affecting individuals' preferences regarding the division of public resources. General average income can then be written as

$$y = y_r(1 - ns). \tag{1}$$

We parsimoniously assume there are two types of public spending. First, a general (non-excludable) public good, g, which yields linear utility $B(g) = g$. Second, health-care v. We think of v as the total spending in contagion prevention and medical care for infected people. Health care (as opposed to the general, non-excludable public goods) can be prioritized for natives.[27] The degree of prioritisation to natives is captured by the choice variable p in our model (where

a high value of p denotes high prioritisation for natives). The government's balanced budget constraint is then simply $\tau y = g + v$, where τ is the income tax rate.

A representative native agent enjoys utility g from public good consumption and utility u from private consumption, where $u = U(y_r - \tau y_r)$, with $U' > 0$, $U'' < 0$ and $U''' > 0$. As for her health risk, she incurs an injury or death disutility l if she gets infected *and* she is not well taken care of by the health care system. Let P^c denote the perceived 'contagion' probability and let P^d be the perceived 'injury or death' probability in case of contagion.

Summing up, a native's utility function is $F = u + g - l \cdot P^c \cdot P^d$, which, exploiting the government's budget constraint, we rewrite as

$$F(v, g, n, p^c, p^d, .) = U(\frac{y - v - g}{1 - sn}) + g - l \cdot P^c \cdot P^d. \tag{2}$$

Lastly, and given that this is a model encompassing anti-immigrant sentiment, we abstract from the immigrant's point of view.[28]

4.1 Injury probability function, $P^d(.)$

Health care consists both of protecting the population against infection and providing medical care to infected people. In our model, health care spending is denoted as v and parameterises both of these activities. In this paragraph we focus on the latter, i.e., medical care administered after a patient is infected. This kind of medical attention will logically lower the probability of injury or death, denoted here as P^d, so that $P^d_v < 0$.[29]

Yet medical care is also an excludable and publicly provided good. We therefore assume that natives are only interested in their own injury or death probability and hence their share of medical care, and not in that of immigrants. In any case, native health outcomes improve if they are given more priority p in medical care. Pandemic severity, denoted by a in our model, raises injury risk and strengthens the marginal effect of medical care. We assume that marginal effects of v, n, and p on injury probability are decreasing.

Lastly, the effect of n on P^d also depends on the amount of prioritization p: if p is 0, then P^d does not vary with n. If p is larger than zero, then $P^d_n < 0$. The intuition here is that a higher share of immigrants implies a lower share of natives, and less natives and more immigrants

imply more resources per capita for natives if immigrants receive less health care.[30] Following this reasoning, the marginal impact of severity a decreases in the share of immigrants n. The marginal effect of p is increasing in n because, with more immigrants, the prioritizing policy increases residents' chance to be cured by a greater extent.

Summing up, we assume that

$$P^d = P^d(v, a, p, n) \qquad \text{with} \qquad \begin{cases} P^d_v < 0,\ P^d_a > 0,\ P^d_p < 0, \\ P^d_n = 0 \text{ if } p = 0,\ P^d_n < 0 \text{ if } p > 0, \\ \text{and} \\ P^d_{va} < 0,\ P^d_{pn} < 0,\ P^d_{na} < 0,\ P^d_{nv} < 0, \\ P^d_{vv} > 0,\ P^d_{pp} > 0,\ P^d_{nn} > 0. \end{cases} \tag{3}$$

Lastly, and for simplicity, we assume $P^d_{vp} = P^d_{pa} = 0$, and we also assume all third-order derivatives are equal to zero.

4.2 Contagion Probability Function, $P^c(.)$

Medical care is not limited to having only individual benefits, but also has positive and protective spill-overs on the health of others. The larger the number of treated people in the population, the lower the probability of getting infected, denoted here by P^c. Thus P^c negatively depends on v, which parameterises the amount of health care administered in the population. We also assume that the direct effect of p on P^c is positive and increasing at the margin. Indeed, prioritizing health care for natives would lead to the formation of a group of under-treated immigrants with a backlash effect on the overall contagion probability, at least for high values of p. Thirdly, we assume the share of immigrants has a positive and convex effect on perceived contagion probabilities. This could for example be because immigrants are perceived as disproportionately employed as 'high-contact' (critical) workers, or as likely to import new variants of a disease. In any case, a similar reasoning as the one in Section 4.1 applies, though in reverse: Given a positive amount of prioritization for natives, greater immigration will increase the chance of geting infected because larger amounts of the population are no longer treated.

Next, and as before, contagion probability positively depends on parameter a, which captures the severity of the pandemic. Finally, we assume that P^c negatively depends on y: a poorer society is more subject to contagion risk. This is realistic because people in poorer societies live in narrower spaces and congested areas, where keeping social distance is more difficult, and they

work in jobs that expose them to greater physical contact with other people. Moreover, they are potentially less informed by standard media outlets and thus less educated in complying with social distancing rules. Summing up, we assume that

$$P^c = P^c(v,a,p,y,n) \qquad \text{with} \qquad \begin{cases} P^c_v < 0,\ P^c_{vv} > 0,\ P^c_p > 0,\ P^c_{pp} > 0,\ P^c_y < 0 \\ \text{and} \\ P^c_{vp} > 0,\ P^c_{vn} > 0,\ P^c_a > 0,\ P^c_{va} < 0,\ P^c_{na} > 0 \\ \text{and} \\ P^c_n > 0,\ P^c_{nn} > 0,\ P^c_{np} > 0,\ P^c_{py} < 0,\ P^c_{ny} < 0,\ P^c_{pyn} < 0. \end{cases} \tag{4}$$

Convexity in v captures herd immunity effects. $P^c_{vp} > 0$ and $P^c_{vn} > 0$ imply that the marginal effect of medical treatment is weaker if natives are given priority and hence, given a positive level of priority, when there are more immigrants in the population. We also assume that treatment is more effective at the margin when the pandemic is more severe, so that $P^c_{va} < 0$, yet the effect of immigration will also come out reinforced, marked by $P^c_{na} > 0$. We also assume that $P^c_{ny} < 0$, which implies that contagion risk is higher if there are more immigrants, but less so if average income in society is higher. As of the other second-order effects, for simplicity we assume $P^c_{yy} = P^c_{pa} = P^c_{vy} = 0$ and also all third-order derivatives $= 0$ (except for P^c_{pyn}).

We can rewrite (2) as a function of p, v, g and n

$$F(p,v,g,n,.) = U(\frac{y-v-g}{1-sn}) + g - l \cdot P^c(p,v,n,a,y) \cdot P^d(p,v,n,a), \tag{5}$$

which will be the four decision variables in the maximization problem we will solve in the following sections.

5 Linking the Model to the Experiment

The optimal values of our policy variables p^*, v^*, g^* and n^* can be seen as the policy preferences of our survey respondents. These values can as a result be linked to our experimental outcomes in the following way:

- p^* is a resident's desired health care priority for the native population, and hence corresponds to our first experimental outcome ('Native health care' in Table 1),

- v^* captures her willingness to contribute to the health care system, and hence corresponds to our experimental outcome eliciting attitudes towards health care provision ('Health care' in Table 1),
- $g^* + v^*$ captures her willingness to pay taxes for total public provision, and hence corresponds to our experimental outcome eliciting attitudes towards the general tax burden ('Tax burden' in Table 1),
- n^* is a resident's desired amount of immigrants in the overall population, and hence corresponds to our second experimental outcome eliciting anti-immigration sentiments in general ('Anti-immigration' in Table 1).

State variables y and a capture the state of the economy and the pandemic severity. Comparative statics will tell us how shocks in y and a affect the outcome variables. Linking this to our experiment, we can as a result see y as our Economic condition and a as our Health condition. Information treatments about these conditions aim at exogenously changing the participants' perception of the economic and health effect of the pandemic, and hence correspond to the comparative statics derived from the model.[31] Finally, parameter s accounts for income inequality between natives and immigrants.[32]

5.1 Optimality Conditions

Maximising (a native's) utility (5) with respect to our first three choice variables p, v and g yields three first order conditions (detailed in Appendix A.2) which characterise the stationary point $\{p^*, v^*, g^*\}$. In Subsection 5.4 we derive the same conditions, but including our second anti-immigration dimension n instead of p.[33]

Optimal priority policy p^* trades higher contagion risk (from concentrating health care too much on natives) against lower injury risk (from providing medical care to natives, once infected). Optimal health care spending v^* solves the trade-off between the marginal cost of taxation with the marginal benefit from lowering contagion and injury risk. The optimal level of the general public good g^* equalises the marginal opportunity cost of taxation with the marginal benefit of the public good.

Appendix A.1 shows that enough concavity of $U(.)$ and convexity of $P^c(.)$ and $P^d(.)$ ensure that second order conditions are satisfied at the stationary point and that comparative statics are as derived in the following section. We use these comparative statics to derive hypotheses concerning the effect of our experimental conditions on our outcome variables of interest (p^*, v^*, g^* and later n^*).

5.2 Economic Condition, y

The comparative statics with respect to y account for our *economic* experimental treatment. While the formal derivations can be found in Appendix A.2.1, we describe the model's predictions in words in this section.

The model first of all implies that a negative economic shock ($y \downarrow$) can lead to higher or lower levels of desired priority p^* of medical care for natives. As we show in Appendix A.2.1, a change in y crucially shapes the trade-off between two countervailing effects. On the one hand, contagion risk will be higher in poorer societies as assumed in Subsection 4.2, so that $P^c_y < 0$. For this reason, natives will want to receive more priority in health care because this brings down death risk once infected as $P^d_p < 0$. On the other hand, excessive prioritisation of natives gives rise to higher contagion risk in itself ($P^c_p > 0$) precisely because fewer immigrants will receive medical treatment, and this effect is even stronger if income decreases ($P^c_{py} < 0$). If the latter effect dominates, negative economic shocks will push natives towards sharing more of their health care with newcomers.

Second, the model predicts that a negative economic shock leads to lower levels of desired public good g^*. The reason is as follows. Because $U(.)$ is concave, and thus marginal utility of the private good is decreasing, the native's optimal level of public good is lower if her income is lower. This effect is reinforced by the fact that immigrants are poorer than natives: Natives finance a relatively larger proportion of the public good and they are less willing to do so if their own income is smaller.

Concerning the effect of a drop in y on optimal health care spending v^*, the model again outlines a trade-off. On the one hand, we have the same reasoning as above for g^*, where

the native's preferred level of public spending is decreasing in her income. This effect is again reinforced by the underlying inequality of incomes. On the other, a native would like to contribute to health care more after a negative income shock. Because individuals are poorer across the board in this case, and hence contagion risk will be larger, health care yields larger benefits at the margin due to $P_v^d < 0$. The overall effect of a pessimistic economic outlook on optimal health care spending is therefore unclear and depends on the relative strength of these two countervailing effects.

The effect of the economic shock on a native's overall willingness to pay taxes is characterized by the sum of g^* and v^* in our model. As a result, when income inequality (between natives and immigrants) is large and the effect of income on contagion risk is low so that P_y^c is close to 0, the negative effect on g^* can be expected to dominate, no matter in what direction v^* is affected. In this case, if the resident is told that the pandemic is hitting the economy harshly, she wants to pay fewer taxes irrespective of the fact that she may nonetheless also like to finance the health care system, hence prefer higher levels of v.

Linking our survey experiment to the trade-offs described above, we can derive a first hypothesis summarising the effect of a pessimistic economic outlook ($y \downarrow$) on each of our outcome variables of interest.

Hypothesis 1. ***The effect of a pessimistic economic outlook ($y \downarrow$) on:***

a. *Health care prioritisation (p^*): If contagion risk rises substantially when society becomes poorer (high $|P_y^c|$) yet is relatively unaffected by treating immigrants less (low $|P_{py}^c|$), natives will prefer more health care for themselves.*

b. *Health care spending (v^*): If inequality is low, private consumption not too important, and contagion risk shoots up when society becomes poorer (high $|P_y^c|$), natives will opt for higher levels of health care.*

c. *Willingness to pay taxes ($g^* + v^*$): If inequality of incomes between natives and immigrants is high and private consumption is deemed important, natives will be less willing to contribute to overall public spending.*

5.3 Health Condition, a

The comparative statics with respect to pandemic severity a account for our *health* experimental treatment. While the formal derivations can be found in Appendix A.2.2, we describe the model's predictions following an exogenous change in a in words here.

First, the effect of a severe health crisis ($a \uparrow$) on health care prioritisation p^* again depends on the trade-off between the benefits of preferential treatment for natives on the one hand (because $P_p^d < 0$), and treating immigrants to lower contagion risk on the other (with $P_p^c > 0$). Natives will desire prioritised health care more if a affects contagion risk more than it affects injury risk, i.e., if P_a^c is sufficiently large compared to P_a^d. In this case a resident bears a higher risk of getting infected ceteris paribus, thus she values medical care for herself more. The more likely it becomes to catch the virus, in other words, the more prioritised access to medical care becomes crucial. Inversely, if chances of falling seriously ill or even dying are very large, residents will want to eliminate contagion risk at all cost by also treating immigrants.[34]

Next, our model predicts that pandemic severity has no *direct* effect on general public spending, g^*, because the optimal level of the general public good does not directly depend on pandemic severity a. Conversely, increased severity ($a \uparrow$) increases demand for health care spending v for two reasons. It increases the mitigating effect of v on contagion and injury risk at the margin because P_{va}^c and P_{va}^d are both negative. At the same time, the interaction between contagion and injury probabilities is weaker with more health care in place because P_v^c and P_v^d are negative. The effect of pandemic severity on willingness to pay taxes ($v^* + g^*$) should therefore be positive as well.

Linking our survey experiment to the trade-offs described above we can derive a second hypothesis, now summarising the effect of a severe health crisis($a \uparrow$) on each of our outcome variables of interest.

Hypothesis 2. ***The effect of a pessimistic health outlook ($a \uparrow$) on:***

a. *Health care prioritisation (p^*): If health crises have a larger impact on contagion risk than on injury risk ($P_a^c > P_a^d$), and if contagion risk is relatively unaffected by treating*

immigrants less (low $|P_p^c|$), natives will want more health care prioritisation following a health shock.

b. *Health care spending (v^*): A pessimistic health outlook increases the level of preferred health care spending.*

c. *Willingness to pay taxes ($g^* + v^*$): A pessimistic health outlook increases the willingness to pay taxes, which is entirely driven by a boost in desired health care spending v^*.*

5.4 A Second Anti-Immigration Dimension, n

Residents might think that immigrants are too many. To capture this second dimension of anti-immigration sentiment, let us replace p with n as a choice variable in our maximization problem. The three choice variables then become

$$v, \quad g, \quad n.$$

As mentioned earlier, the optimal value of n^* is a native's opinion about how many immigrants should be allowed in the country. The difference between the actual number of immigrants and n^*, if positive, then captures her anti-immigration feelings. Any shock that leads to a decline in n^* would therefore lead to an intensification of these anti-immigration feelings. Computing the n^* of a representative native, we can again study how it is affected by our economic and health conditions.

The objective function (a representative native's utility) as a function of the share of immigrants n is given by

$$F(v, g, n, .) = U\left(\frac{y - v - g}{1 - sn}\right) + g - l \cdot P^c(v, p, a, y, n) \cdot P^d(v, p, n, a) \tag{6}$$

As can be seen from equation 1, a higher number of immigrants n yields a higher income for residents y_r, if average income does not decrease. This captures the realistic idea that immigration contributes to a country's growth and makes residents richer, at least to some extent (Peri, 2012; Borjas, 2019). From the residents' viewpoint, immigration then implies a trade-off between higher income and larger contributions to protect immigrants from the risks

of infection. A second trade-off comes in as well, where higher contagion risks brought along by immigration are offset by lower injury risks, as explained in Section 4.1 and Section 4.2.

The first order derivative of (6) with respect to n (detailed in Appendix A.3) indeed captures both trade-offs, pinning down the preferred level of immigration n^* and ensuring an interior solution. If n^* decreases, residents become less favorable towards immigration. The comparative statics with respect to y and a derived in Appendix A.3.1 show that this may occur both when an economic or a health crisis strikes.

First, when income decreases ($y \downarrow$) the marginal effect of immigration on native income follows suit, so that native residents become less open to immigration. There is however a second-order effect, which points in the opposite direction. Indeed, if income decreases, natives also have to pay fewer taxes to subsidise immigrants. Focusing on contagion and injury probabilities, lastly, adds an extra dimension to this trade-off. Due to $P_n^c > 0$ natives want less immigrants to reduce contagion risk, yet more immigrants to mitigate injury risk because $P_n^d < 0$ (if there is at least some prioritisation of natives in health care, i.e. $p > 0$).

Second, the effect of a severe health crisis ($a \uparrow$) on the desired level of immigration n^* again depends on the trade-off between avoiding the larger risk of becoming infected, due to $P_n^c > 0$, and the better access to medical treatment if immigration levels are higher, due to $P_n^d < 0$ (if $p > 0$). Moreover, this trade-off is further set on a knife's edge by the marginal effects of increased severity a, with $P_{na}^c > 0$ counterbalancing $P_{na}^d < 0$.

Linking our survey experiment to the trade-offs described above we can then derive a last hypothesis, now summarising the effect of a severe health *and* economic crisis on the desired level of immigration n^*.

Hypothesis 3. ***The effect on desired levels of immigration of:***

a. *A pessimistic economic outlook ($y \downarrow$): If the positive income effect of migration outweighs the contribution to public spending on immigrants, and if the contagion risk of increased immigration outweighs the coinciding benefit of increased prioritisation, natives will be less open to immigration.*

b. *A pessimistic health outlook (a ↑): If the contagion risk of increased immigration outweighs the benefit of increased prioritisation, and if the former is reinforced by the health shock, natives will be less open to immigration.*

6 Analysis and Statistical Methods

We investigate individuals' responses to our survey in search for systematic differences between those who received optimistic and pessimistic scenarios, separately for the economic and health dimensions. The different nature of the two scenarios and the straightforward interpretation of differences *within* a given dimension *across* optimistic and pessimistic information warrant that the two dimensions be analysed and interpreted separately in empirical investigations.

Let $Pess \in \{0, 1\}$ take value 1 if the respondent received pessimistic information and 0 otherwise. For each of our outcome variables and *within* the economic and health dimensions, we then estimate the following OLS regression:

$$Y = \beta_0 + \beta_1 Pess + \beta_2 X + \beta_3 W + \beta_4 r + \varepsilon \tag{7}$$

where Y is our vector of outcome variables, X, r, and W are vectors of respectively individual controls, regional fixed effects and provincial controls. The list of control variables is reported in Table 2.[35] Standard errors are clustered at the province level. The immigrant population is not distributed evenly or randomly over the Italian territory. Clustering the standard errors accounts for potential geographical correlation in the responses to our experimental conditions due to the different exposure to migration across municipalities. We correct the standard errors for multiple hypotheses testing using the method developed and discussed by List et al. (2019) and implemented by Barsbai et al. (2020).[36] Finally, we standardise our outcome variables with respect to the optimistic groups within each dimension. For this reason, regression coefficients for the impact of pessimistic information in the economic (health) dimension should be interpreted in terms of the standard deviation of the responses of the optimistic economic (health) group.

Variable vector	Variable
Individual controls: X	Employment status College degree or higher Italian native Gender (female=1) Age (5 classes: 18-30, 31-40, 41-50, 51-60, 61-70) Family size Sample income tertile Marital status (single=1)
Provincial controls: W	Population size Immigrant population share
Region fixed effects: r	

Table 2: List of control variables by type

7 Experimental Results

The following section presents the main results of our empirical analysis. Within each dimension, we compare the impact of receiving pessimistic compared to optimistic information using OLS regressions.[37] Because we standardise the coefficients with respect to the optimistic groups, separately within each of the economic and health dimensions, the estimated effects should be read in terms of percentage of the respective optimistic groups' standard deviations. Table D6 in Appendix D.3 reports summary statistics of the responses to our main outcome variables. We report results both conditioning and not conditioning on individual and geographical characteristics for each model. We can thus gauge the robustness of our results to the inclusion of controls.

In particular, sampling variation generated an uneven distribution of optimist and pessimist conditions in the economic dimension over the distribution of the immigrant population (see Table D3 in Appendix D.2). Owing to the fact that the size of the immigrant population is a potential confound of our experimental variation, the fact that our findings are robust to the inclusion or exclusion of covariates reassures us of the validity of our experimental results. This aspect is further discussed in Section 7.1, where we perform heterogeneity analyses of our effects with respect to the size of the immigrant population at province level.

As discussed in Section 3, our data is likely to over-represent higher education levels to some

extent. Education is in turn found to have a mitigating impact on anti-immigration attitudes (e.g., Cavaille and Marshall, 2019), which might lead us to underestimate the aggregate effect of our interventions on the general population. Appendix E replicates the analyses reported here by splitting the sample according to the respondents' education level (college degree or no college degree): Our results and conclusions remain unchanged in those analyses.

We begin by investigating the impact of pessimism in the economic dimension in comparison to the optimistic scenario. Table 3 reports the coefficients from the estimation of model (7) for our outcome variables of interest: Natives' desired degree of prioritisation in health care, agreement with the statement that the current level of immigration is too high, agreement with the statement that the tax burden is too high and agreement with tax-financed health care spending.[38]

Table 3: OLS regression of immigration sentiments: economic dimension

	Economic dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Without controls				
Pessimistic info. = 1	0.101**	0.007	0.065	0.111**
	[0.021]	[0.991]	[0.258]	[0.030]
	(0.002)	(0.825)	(0.043)	(0.003)
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.003	0.000	0.001	0.003
With controls				
Pessimistic info. = 1	0.104**	0.008	0.068	0.111**
	[0.016]	[0.773]	[0.218]	[0.018]
	(0.001)	(0.773)	(0.035)	(0.002)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.039	0.051	0.043	0.041

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic economic information intervention. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors are clustered at province level. Robust p-values corrected for multiple hypothesis testing in brackets. Uncorrected p-values in parentheses.
Corrected p-values significance: *** p<0.01, ** p<0.05, * p<0.1

We find that agreement with the statement that public health care should be reserved to natives increases by 10.1% of the optimistic economic group standard deviation (p=0.002). Fol-

lowing Hypothesis 1a, this finding could mean that respondents associate a poorer society with higher contagion risk (which increases their own infection risk, thus raising the importance of proper health care for themselves), and downplay the risk of under-treating the immigrant population. Second, we also observe an increase in agreement with the statement that overall immigration is too high, by 11.1% (p=0.002) of the optimistic group's standard deviation. Through the lens of Hypothesis 3a, this finding can be explained by the positive income effect of migration outweighing the contribution to public spending on immigrants, which is a double-edged sword. Immigrants being more welcome the richer societies become logically means they are less welcome during economic downturns. Because the economy is smaller in the latter case, the economic gains from a larger immigrant population are proportionally smaller compared to richer, more productive societies. When native residents are relatively poorer, in other words, they will be less interested in the scale effects that immigrants bring to their economy, as these will be smaller.[39]

Further, we find that perceptions about the excessiveness of the tax burden in Italy also increase among those who receive pessimistic economic information (+6.8% of the optimistic economic group, p=0.031), yet the significance fades away once the p-value is corrected for multiple hypothesis testing. Following Hypothesis 1c, the interpretation here would be that inequality of incomes between natives and immigrants is perceived as more or less balanced. Attitudes towards health care spending are unaffected as well, which according to Hypothesis 1b would mean that perceived inequality and the importance of private consumption are evenly outweighed by larger risks attributed to getting infected in a poorer society.

We summarise these findings in Result 1:

Result 1. *Pessimism in the economic dimension increases general anti-immigration sentiments and natives' demand for prioritisation in health care. It does not substantially affect people's willingness to pay taxes and the preferred level of health care spending.*

Next, we turn to the impact of pessimism in the health dimension. Table 4 reports the results from the estimation of model (7) on data collected from respondents in the health treat-

ments. At first glance, we can see that the effects move in the same direction when it comes to native prioritisation and anti-immigration sentiments, but are smaller than in the economic dimension. Only the finding that pessimism can increase natives' desired level of health care prioritisation is significant (+7%, p=0.050), yet does not survive p-value correction for multiple hypothesis testing. Following Hypothesis 2a, this finding would then imply that health crises are perceived to inflate contagion risk to the same degree as injury risk. A pessimistic health outlook also does not significantly strengthen general anti-immigration sentiments (+5.5% of the health pessimism group's standard deviation, p=0.159), which according to Hypothesis 3b would mean that given the health shock, the contagion risk of increased immigration is perceived to be balanced out by the coinciding benefit of increased native prioritisation (i.e. more immigrants means proportionally less natives, hence ex-ante prioritisation is more effective).

Table 4: OLS regression of immigration sentiments: health dimension

	Health dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Without controls				
Pessimistic info. = 1	0.076	0.014	-0.023	0.058
	[0.307]	[0.933]	[0.990]	[0.616]
	(0.049)	(0.711)	(0.608)	(0.175)
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.001	0.000	0.000	0.001
With controls				
Pessimistic info. = 1	0.071	0.008	-0.031	0.054
	[0.361]	[0.947]	[0.908]	[0.618]
	(0.058)	(0.821)	(0.493)	(0.174)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.068	0.044	0.047	0.068

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors are clustered at province level. Robust p-values corrected for multiple hypothesis testing in brackets. Uncorrected p-values in parentheses.
Corrected p-values significance: *** p<0.01, ** p<0.05, * p<0.1

Lastly, and going against Hypothesis 2c (and 2b), perceived excessiveness of the general tax burden is unaffected (-2.3%, p=0.486) by the presentation of pessimistic health information, as

is desire to increase health care spending.

We summarise these findings in Result 2:

Result 2. *Pessimism regarding the health consequences of the pandemic does not affect natives' demand for prioritisation in health care, general anti-immigration sentiments, willingness to pay taxes and health care finance.*

The null-effects of health pessimism are only partially consistent with our theoretical model. As explained above, the null-results concerning desired health care prioritisation and general anti-immigration sentiments could be explained by countervailing effects cancelling each other out. However, the fact that the willingness to pay taxes and the preferred level of health care spending are not affected is at odds with the predictions of our model, according to which both variables should increase. One potential explanation could be that our experimental conditions were simply not successful in (sufficiently) widening respondents' perception gap between optimism and pessimism in the health dimension. It could in fact be the case that Italians were all quite pessimistic about the health consequences of the pandemic in June 2020, and that our optimistic health condition was not strong enough to manipulate people's outlook in that dimension.[40][41] The lack of difference in optimism (or pessimism) concerning the pandemic's health consequences in our health treatments could then explain the lack of (significant) differences in attitudes (towards immigration, taxes and health care).

7.1 Heterogeneity Analysis: Share of Immigrant Population

In this section, we investigate whether our interventions have heterogeneous effects depending on the share of immigrants in the respondent's province of residence.[42] We investigate further heterogeneous effects with respect to respondents' income bracket, exposure to the virus and the incidence of the epidemic in their region in Appendix F.

We interact the indicator for having received pessimistic information with the share of immigrants in the respondent's province of residence. In other words we estimate the following

variation of model (7) with an interest in coefficient β_3:

$$\begin{aligned} Y &= \beta_0 + \beta_1 Pess + \beta_2 \%Imm + \beta_3 \left[Pess \times \%Imm\right] \\ &\quad + \beta_4 X + \beta_5 W + \beta_6 R + \beta_7 \left[Pess \times p.c.GDP\right] + \varepsilon. \end{aligned} \tag{8}$$

In addition to the individual and regional fixed effects included in the regressions for Tables 3 and 4, we also control for the interaction between the indicator for having received pessimistic information and per capita GDP of the respondent's region of residence (only in the specification with the full set of controls). Including this interaction term allows us to control for any additional heterogeneous effects of our pessimistic information with respect to regional GDP, which are likely to be correlated with the share of immigrants as well. This exercise is performed separately for the economic (Table 5) and the health (Table 6) dimensions.[43]

From Table 5, we see that the impact on anti-immigration sentiment of the pessimistic economic outlook seems to be *mitigated* in provinces with a higher immigrant presence (interaction coefficient β_3 on [Pess. info × Imm. pop.]). The same can be observed for a positive effect of the interaction on demand for healthcare. These interactions are robust to the inclusion of covariates. Adding controls, moreover, allows us to detect a reduction in demand for exclusivity in healthcare. These results are in line with Steinmayr (2020) and point towards a mitigating effect of contact with immigrant populations on anti-immigration sentiments.[44]

More specifically, and following our model, the finding that natives want less health care prioritisation and hence more health care for immigrants following economic pessimism can be explained by a mounting apprehension of contagion risks in the presence of larger immigrant populations. In Section 4.2 we assumed that contagion risk in poorer areas is perceived to rise when immigrants receive insufficient health care ($P^c_{py} < 0$). Because we also assume this contagion risk of under-providing health care to immigrants is higher the more immigrants there are to begin with ($P^c_{pn} > 0$), the combined effect of immigration and economic insecurity can be expected to be rather large, implying that $P^c_{pyn} << 0$. From equation 11 in Appendix A.5 we then learn that the more immigrants there are in a poorer province, the more native health care prioritisation will be perceived as inflating contagion risks, and hence treated with

more concern. Furthermore, and following equation 10, a similar argument can be made to interpret the increased support for health care spending. The difference is that now, instead of prioritisation, the effect of the economic shock itself on perceived contagion risks in areas with more immigrants is the main driver ($P^c_{yn} < 0$). This effect then carries across to explain the overall drop in tax burden aversion we also find empirically.

A different picture emerges from Table 6. There, we see that the impact of our pessimistic health scenario on general and health-related anti-immigration sentiments does not vary across provinces with different immigrant population shares.[45] Focusing on the latter, and following equation 14, this finding can again be explained by the contagion risk of under-provision of health care to immigrants ($P^c_{pn} > 0$), here sufficiently large to counteract the direct effects of a health shock on overall contagion risk perceptions. Second, varying immigrant population shares do not seem to affect the overall desired level of health care spending under the health condition. Following equation 13 and similar to Hypothesis 3b, this observation could imply that contagion risks of increased immigration are perceived to be balanced out by the coinciding benefits of increased native prioritisation.

Table 5: OLS regression of immigration sentiments: economic dimension

	Economic dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Without controls				
Pessimistic info. = 1	0.104***	-0.005	0.072**	0.121***
	(0.035)	(0.035)	(0.035)	(0.038)
Immigrant pop. (% prov.)	0.004	-0.014*	0.014	0.014*
	(0.008)	(0.008)	(0.009)	(0.008)
Pess. info. × Imm. pop. (% prov.)	-0.010	0.028***	-0.016	-0.023**
	(0.011)	(0.010)	(0.011)	(0.012)
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.003	0.000	0.001	0.003
With controls				
Pessimistic info. = 1	0.109***	-0.002	0.074**	0.120***
	(0.035)	(0.033)	(0.035)	(0.037)
Immigrant pop. (% prov.)	0.035	-0.003	0.026	0.015
	(0.037)	(0.020)	(0.041)	(0.032)
Pess. info. × Imm. pop. (% prov.)	-0.011	0.025**	-0.015	-0.021*
	(0.011)	(0.011)	(0.011)	(0.011)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.044	0.050	0.046	0.055
With controls and region GDP × Pess.info interaction				
Pessimistic info. = 1	-0.110	-0.060	-0.102	0.021
	(0.107)	(0.105)	(0.126)	(0.137)
Immigrant pop. (% prov.)	0.040	-0.002	0.030	0.017
	(0.037)	(0.020)	(0.041)	(0.032)
Pess. info. × Imm. pop. (% prov.)	-0.022*	0.022*	-0.023*	-0.026**
	(0.011)	(0.012)	(0.012)	(0.013)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Pess. info × region GDP p.c.	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.045	0.050	0.047	0.055

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic economic information intervention interacted with the share represented by the immigrant population in the respondents' province of residence. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population. The regressions with controls also account for regional fixed effects. The regressions with controls also account for regional fixed effects. The third panel also controls for the interaction between per capita regional GDP and the indicator for having received pessimistic information.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 6: OLS regression of immigration sentiments: health dimension

	Health dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Without controls				
Pessimistic info. = 1	0.079*	0.010	-0.000	0.062
	(0.042)	(0.042)	(0.048)	(0.046)
Immigrant pop. (% prov.)	0.015	0.012	0.020**	-0.023*
	(0.013)	(0.008)	(0.009)	(0.013)
Pess. info. × Imm. pop. (% prov.)	-0.006	0.009	-0.057***	-0.010
	(0.013)	(0.013)	(0.014)	(0.014)
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.002	0.000	0.001	0.002
With controls				
Pessimistic info. = 1	0.073*	0.003	-0.012	0.055
	(0.041)	(0.043)	(0.043)	(0.043)
Immigrant pop. (% prov.)	0.009	-0.068**	0.085**	-0.009
	(0.042)	(0.029)	(0.039)	(0.040)
Pess. info. × Imm. pop. (% prov.)	-0.005	0.012	-0.048***	-0.004
	(0.013)	(0.013)	(0.014)	(0.014)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.068	0.044	0.047	0.068
With controls and region GDP × Pess.info interaction				
Pessimistic info. = 1	-0.005	0.067	-0.017	0.104
	(0.141)	(0.125)	(0.152)	(0.136)
Immigrant pop. (% prov.)	0.011	-0.069**	0.085**	-0.010
	(0.042)	(0.029)	(0.039)	(0.041)
Pess. info. × Imm. pop. (% prov.)	-0.009	0.016	-0.048***	-0.002
	(0.014)	(0.015)	(0.018)	(0.017)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Pess. info × region GDP p.c.	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.068	0.044	0.047	0.068

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention interacted with the share represented by the immigrant population in the respondents' province of residence. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population. The regressions with controls also account for regional fixed effects. The third panel also controls for the interaction between per capita regional GDP and the indicator for having received pessimistic information.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Lastly, the impact of our pessimistic health scenario on perceptions of the general tax burden as being excessive is substantially mitigated by a larger share of the immigrant population in the respondents' province of residence. Our model cannot fully account for this empirical

result, suggesting that some form of "rally around the flag" effect might have been triggered by pandemic severity. This sentiment might induce people to contribute more to general public goods, specifically in regions where immigration is higher, perhaps because residents perceive immigrants as less different and more integrated in these areas.

7.2 Shifts in Political Preferences

We now examine whether our anti-immigration results, and hence the impact of our intervention, is limited to sentiments or whether they also underpin a shift in our respondents' political preferences. Two competing arguments can be made in this sense. First, the Covid-19 crisis is, as argued above, a natural disaster which cannot be attributed credibly to any of the social groups against which traditional populist rhetoric is usually focused (e.g. immigrants, political actors and financial elites as in Mudde (2007); Dal Bo et al. (2018); Fetzer (2019)). In other words, fear and economic anxiety originating from the Covid-19 crisis can hardly be harnessed via radicalisation of one's political preferences along the usual lines. On the other hand, radical political parties often actively or passively capture individuals' broadly defined socio-economic anxiety. For these reasons we might expect to observe either a negligible impact on individuals' political preferences or to find evidence for increased support for radical parties in response to receiving pessimistic information about the consequences of the crisis.

We consider the three outcomes presented in Section 3, i.e. voting preferences for anti-immigrant, populist and incumbent parties. We then model the probability of expressing voting preferences falling in one of our three classes as a function of the type of information received, controlling for all the covariates listed in Table 2 using probit models (standard errors are clustered at province level). Notice that the constellation of common and not common membership of the different political parties to our classifications allow us to distinguish the different attraction of the anti-immigration rhetoric, platforms and programmes from more broadly populist ones.

Tables 7 and 8 display the results of the estimation of linear probability models for voting intentions supporting anti-immigration, radical (populist) and incumbent parties.[46] We observe

no significant shifts towards anti-immigrant and populist platforms once individuals are exposed to pessimistic information about the Italian economic or health outlooks after p-values are corrected for multiple hypothesis testing.

Table 7: OLS regression of voting intentions: economic dimension

	Economic dimension		
	Anti-imm. parties	Populist parties	Incumbent parties
Without controls			
Pessimistic info. = 1	0.030	0.035	-0.009
	[0.340]	[0.271]	[0.962]
	(0.070)	(0.045)	(0.609)
- Constant	✓	✓	✓
Observations	3,003	3,003	3,003
R-squared	0.001	0.001	<0.001
With controls			
Pessimistic info. = 1	0.029	0.032	-0.013
	[0.339]	[0.272]	[0.960]
	(0.076)	(0.061)	(0.447)
Omitted controls:			
- Individual	✓	✓	✓
- Provincial	✓	✓	✓
- Constant	✓	✓	✓
Observations	3,003	3,003	3,003
R-squared	0.035	0.038	0.042

The table displays the results from OLS regressions of voting intentions on our pessimistic economic information intervention. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors are clustered at province level. Robust p-values corrected for multiple hypothesis testing in brackets. Uncorrected p-values in parentheses.
Corrected p-values significance: *** p<0.01, ** p<0.05, * p<0.1.

Table 8: OLS regression of voting intentions: health dimension

	Health dimension		
	Anti-imm. parties	Populist parties	Incumbent parties
Without controls			
Pessimistic info. = 1	-0.009	-0.015	-0.022
	[0.970]	[0.872]	[0.619]
	(0.605)	(0.360)	(0.136)
- Constant	✓	✓	✓
Observations	2,956	2,956	2,956
R-squared	<0.001	<0.001	<0.001
With controls			
Pessimistic info. = 1	-0.013	-0.019	-0.023
	[0.920]	[0.687]	[0.543]
	(0.446)	(0.231)	(0.112)
Omitted controls:			
- Individual	✓	✓	✓
- Provincial	✓	✓	✓
- Constant	✓	✓	✓
Observations	2,956	2,956	2,956
R-squared	0.052	0.048	0.052

The table displays the results from OLS regressions of voting intentions on our pessimistic health information intervention. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors are clustered at province level. Robust p-values corrected for multiple hypothesis testing in brackets. Uncorrected p-values in parentheses.
Corrected p-values significance: *** p<0.01, ** p<0.05, * p<0.1

Our analysis thus shows that material distress does not always lead to political radicalisation, at least during the first year of a crisis. In our case this observation can be explained by the fact that the traditional rhetoric and arguments of radical parties cannot credibly target those social segments against which the discourse is commonly addressed. More generally, our findings are also consistent with Daniele et al. (2020a).[47] They find evidence for two impacts of the Covid-19 crisis, each brought about, respectively, by the economic and health/social dimensions of the epidemic. Especially in the first case, increased economic anxiety causes sizeable drops in trust towards politicians and sharpens dissatisfaction with the governing institution, whilst at the same time it saps support for populist parties and discourse.

8 Conclusions

Economic crises are often accompanied by a strengthening of anti-immigration sentiments, both in terms of a decrease in natives' preferred level of immigration (Guiso et al., 2017; Bellucci

et al., 2019), but also in terms of their desire to limit immigrant access to public services and to the welfare state (Vogt Isaksen, 2019). Despite the positive correlation between economic insecurity and anti-immigration attitudes emerging from previous studies, the causal nexus has remained, so far, poorly understood.

A crisis such as the one triggered in 2020 by the Covid-19 epidemic offers the perfect testing ground for this link. On the one hand, as the economic downturn is brought about by an epidemic, an unexpected and exogenous event originating "outside" of the economic and social systems, its impact on individuals' attitudes is observable in isolation of the shared socio-cultural and political narratives normally confounding it in the presence of endogenous economic shocks. On the other, the dual nature of the crisis as both a health and an economic shock allows us to investigate both sides of the coin: That of a nativist retrenchment behind closed borders, and that of a protectionist attitude towards native access to public resources made scarcer by the tightening economy. This second line of reasoning is of particular interest here: Limiting immigrants' access to public services such as health care might not be the optimal response. Indeed, contagion risk for natives may increase as immigrants remain untreated. An important question to investigate is then whether the economic crisis ensuing the Covid-19 pandemic has triggered responses, in terms of anti-immigration sentiments, aligned to the ones observed in connection with previous economic crises, and what impact the additional "health crisis" component present this time has had.

We design experimental interventions allowing us to randomly induce optimistic or pessimistic perceptions of the economic and health impacts of the Covid-19 crisis to explore their causal effect on anti-immigration sentiments. Furthermore, we propose a model showing how perceptions of the economic and health consequences of the crisis can shape the trade-offs at play. Our results indicate that, indeed, pessimistic perceptions of the economic impact of the pandemic significantly strengthen both demand for lower immigration and for native preferential access to healthcare. Importantly, pessimistic perceptions of the health impact of the crisis also trigger a desire for health care to be limited to native provision.

Our findings have two important implications for possible future health and economic crises.

First, the protective impulse to ring-fence the provision of public goods, such as health care, may also arise as a result of health crises. Though a pandemic, as a natural disaster, might be expected to trigger feelings of social cohesion and unity, emphasizing in particular the importance of accessible public health care to prevent contagion, our results indicate that the wedge between natives and immigrants in fact widened. Whilst the negative effect on the desired immigration level has been observed during other economic downturns, the fact that natives prefer to exclude immigrants from health care services during a pandemic is surprising. It shows that the effect of distress on political attitudes can go beyond the purely economic dimension. Because public health care provision internalizes potentially large negative externalities for society as a whole, the policy implication here could be to stress its effectiveness, from an efficiency perspective, during the crisis.

Second, the fact that we find evidence of support for prioritization in both pessimistic conditions suggests the potential for add-on effects. The more dimensions of material distress are triggered by a crisis, in our case both the economic- and health-related dimension, the deeper anti-immigration sentiments may run when linked to relevant aspects of public goods provision. Again, the main take-away of this potential outcome is the importance of stressing the value of the different public functions to combat a seemingly overwhelming crisis. Future research could adopt experimental designs focusing directly on the interaction between the various dimensions of a crisis to offer tighter insights into how they stack up and drive public sentiment.

These results, though obtained relatively early in the pandemic, should be read and evaluated not only in the light of what was happening, socially and economically, back then, but also in the light of what is to come. Most experts, both on the economic and epidemiology sides, will agree that we can expect similar, and potentially even more unhinging, crises in the median to long run. The relevant question to ask for future studies is therefore not whether the effects we uncovered here are going to prevail after the pandemic is over, but rather, how they will evolve in the ongoing grip of its economic aftermath.

Notes

[1]See, amongst others, Alesina et al. (2018); Martinangeli and Windsteiger (2019); Romarri (2019); Guriev and Papaioannou (2020); Turner and Cross (2015) who highlight various angles of this debate.

[2]See Boeri (2010); Polavieja (2016); Kuntz et al. (2017); Dal Bo et al. (2018); Mutz (2018); Norris and Inglehart (2019); Fetzer (2019) and the references therein.

[3]For instance, instead of seeking to ring-fence health care, a global pandemic may push natives to further extend access to immigrants in order to limit contagion risks. Earlier evidence that economic downturns foster anti-immigration sentiments might in this case be mitigated, or even upturned, by the health dimension of the crisis.

[4]We hence abstract away from other concerns affecting people's attitudes towards immigrants in time of distress (e.g., xenophobia, nationalism, cultural identification, rally-around-the-flag effects). These concerns are important too, but would probably require a different theoretical treatment.

[5]See Mudde (2007); Dal Bo et al. (2018); Fetzer (2019) on this rhetoric. During the Covid-19 crisis, conversely, social and political discourse was instead centred around the lack of response on behalf of other European countries. For more background information in the Italian press, see here.

[6]Beginning with the frantic search for "patient zero", allegedly an Italian businessman on his way back from China, to the feverish rush to isolate the rapidly spreading hot-spots, local and central administrations were seemingly always one step behind the virus. For more background information in the Italian press, see Italian newspaper news on Il Corriere della Sera or La Repubblica.

[7]There are many more aspects of the crisis than the economic and health dimensions. We restrict this investigation to these two as we find them the most immediately salient to individuals and the best suitable to investigate the effect of zero-sum dynamics on anti-immigration sentiments.

[8]Available at: http://www.oecd.org/economic-outlook/march-2020/

[9]For more background information, see articles in the Italian press on I Sole 24 Ore and AGI.

[10]Excess mortality is measured as the difference between the number of deaths actually observed in a given geographic area in a given time period and the number of deaths expected in the same place and time based on the previous five-year average.

[11]In any case the economic and health dimensions of the epidemic are inextricably interlinked. Any divergence in the responses to our questionnaire observed between the pessimistic and the optimistic economic scenario might still be attributed to the activation of health crisis awareness upon the provision of the information contained in our economic scenarios, and vice versa.

[12]For an overview of research on the economic impact of Covid-19 see Brodeur et al. (2021) and the referenced literature.

[13]https://www.opinioni.net/

[14]We are a priori able to detect a minimum effect MDE=0.1 on standardised outcome measures at $\alpha = 0.05$ and power $\pi = 0.8$ in comparison of optimist versus pessimistic information conditions in each of the economic and health conditions.

[15]EU-SILC: https://ec.europa.eu/eurostat/web/main/home. We use income classes in the survey to minimise attrition. In computing equivalised household income we thus apply the OECD modified equalisation weights to the midpoint of each class.

[16]https://www.istat.it/en/

[17]Notice that, due to feasiblity constraints, we did not set a quota to ensure representativeness at education level. Comparison of our education distribution with the one reported by ISTAT reveals that we are undersampling low education and oversampling higher education levels. However, ISTAT thresholds include age classes below legal age which we exclude by design. These age classes are likely increasing population sizes for low education classes.

[18]The English translation of the full questionnaire can be found in Appendix B. The interested reader can take the survey in Italian by using the following link `https://taxmpg.eu.qualtrics.com/jfe/form/SV_6LnKaH2XSJMs4Pb`.

[19]Appendix G discusses the correction for multiple hypothesis testing performed on our estimates, while Appendix B includes the full set of outcomes included in the survey.

[20]Notice further that this paper should not be confused with another, separate and completely independent multi-country project on the social and political impact of the pandemic the same set of authors have collected data for in the same period (Daniele et al., 2020a,b).

[21]We additionally elicit perceptions of their own tax burden and the demand for tax-financed welfare state expenditure items to obtain a richer picture of the respondents' attitudes. These variables are discussed in Appendix D.5.

[22]The information provided and links to the videos can be found in Appendix C.

[23]Notice moreover that the strict simultaneous presentation of the health and economic information would have made the presentation videos nearly unreadable (see Appendix C), especially on small screens. A quasi-simultaneous (sequential) presentation would potentially have incurred strong order effects and given rise to confusion.

[24]Note that it was precisely this uncertainty, however, which at the same time allowed us to design our experimental conditions and motivated us to favour a design with an active control group and to embed our experimental conditions in a framework in which the respondents can refer to their direct experience of current and past events.

[25]Link to the survey: `https://www.ipsos.com/sites/default/files/ct/news/documents/2020-06/italia_ai_tempi_del_covid_-_9_giugno_-_agg_nr_17_per_pubb.pdf`

[26]In our model it doesn't matter whether immigrants are only *perceived to be* poorer on average (by natives) or whether they actually *are* poorer. We are analyzing a representative native's utility function, and her optimal decisions, which depend on what enters that utility function (and how), could as well be based on perceptions (with possible deviations from reality).

[27]Notice that Italy does not prioritise access to healthcare based on nationality nor on type of immigrant status.

[28]This is in line with our empirical setup, where only a small percentage of our respondents was born abroad (less than 4 percent, see Table D.2). However, even these will most likely still be Italian citizens and can thus be considered natives.

[29]Throughout the paper, subscripts will refer to the partial derivatives with respect to all variables in $P^d(.)$ and $P^c(.)$.

[30]It is easiest to think about this in the extreme: if immigrants receive no health care at all then an increase in the share of immigrants means that the same health care resources are distributed to fewer natives, resulting in more health care per capita for natives, thus P^d must go down.

[31]Note that also parameter l does almost the same job as a if one thinks l captures non-monetary losses from getting the virus and not being cured well.

[32]As mentioned earlier, s might capture material motivations to favor fellow residents. Because immigrants are poorer, residents do not want to subsidize their health care. In the survey, we do not have a specific treatment to test the effect of inequality deriving from the pandemic. It might eventually be explored empirically by future work. We explore the effects of a change in s in our model in Appendix A.4.

[33]This simplification serves the purpose of limiting the number of choice variables to three in order to improve tractability without loss of generality.

[34]Specifically, $F_{pa} > 0$ if $\frac{P^d_a}{P^c_a} < \frac{\left|P^d_p\right|}{P^c_p}$. This inequality is more easily satisfied if the impact of a on contagion risk is large relative to the impact on injury risk (high P^c_a relative to P^d_a).

[35]Table D3 in Appendix D.2 shows that our sample is balanced across our information conditions and dimensions.

[36]This is the most recently developed technique for the purpose. Appendix G reports the results of further multiple hypothesis correction configurations of our estimates.

[37]Notice that because of the different nature of the information provided and the lack of a common reference framework across the two dimensions, comparison of attitudes across equally pessimistic or optimistic information across dimensions is meaningless.

[38]Tables 3 and 4 only report the coefficients of interest. Tables reporting full regression results are reported in Appendix D.1.

[39]As explained below, the impact of pessimism in the health dimension on migration attitudes is neutral. Following our model, this would imply that the perceived contagion risk of increased immigration is balanced out by the coinciding benefit of increased prioritisation. Hence, we can assume that both effects even out in the economic dimension as well.

[40]The reader should recall that Italy was hit particularly hard by the first wave of the pandemic. At that time, the pressure on the health care system was widely reported on, and pictures of hospitals overflowing with patients (and even corpses) were disseminated via national and international media outlets.

[41]A reviewer pointed out that evidence has gathered that the impact of the pandemic was stronger in regions with higher income inequality (e.g. Nicoli et al., 2022). We performed an analysis to check whether our experimental conditions interact with regional inequality, measured as disposable and gross income Gini index and 80^{th} to 20^{th} percentile ratios. None of these analyses offer any indication that the experimental conditions and regional inequality interact in any way.

[42]Appendix F includes a replication of these analyses replacing the share of immigrants at province levels with the province level change in the immigrant population between 2014 and 2019. The results and conclusions here reported are confirmed by those analyses.

[43]We do not correct for multiple hypothesis testing in regressions interacting our experimental conditions with observables. These are secondary results for which we do not formulate explicit hypotheses and the sole purpose of which is that of illustrating how our effects play out across the population.

[44]Notice also that the linear impact of our pessimistic economic information in this estimation remains positive and strongly significant, consistent with the results presented in Table 3. Also as for native health care priority concerns and perceptions of the general tax burden the linear terms for our economic intervention are consistent with the effects reported in Table 3.

[45]Again, the linear terms in the estimation are consistent with the coefficients reported in Table 4.

[46]Appendix D.4 reports results from analogous estimations of probit models, all confirming the results here reported. Note that the p-values in Tables D7 and D8 were not corrected for multiple hypothesis testing. With appropriate corrections, the (weakly) significant effects in Table D7 would become insignificant.

[47]See also: "Covid-19 and socio-political attitudes in Europe: In competence we trust.", VoxEU/CEPR policy portal (Daniele et al., 2020b).

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Appendix

A Theoretical Appendix

A.1 Comparative Statics

We want to determine the signs of $\frac{\partial g^*}{\partial z}$, $\frac{\partial v^*}{\partial z}$, and $\frac{\partial p^*}{\partial z}$, where $z \in \{y, a\}$. Let $g^*(z)$, $v^*(z)$, and $p^*(z)$ are differentiable for each z. We can thus calculate the following expressions:

$$\begin{array}{c} F_{gg}\frac{\partial g}{\partial z} + F_{gv}\frac{\partial v}{\partial z} + F_{gp}\frac{\partial p}{\partial z} \\ F_{vg}\frac{\partial g}{\partial z} + F_{vv}\frac{\partial v}{\partial z} + F_{vp}\frac{\partial p}{\partial z} \\ F_{pg}\frac{\partial g}{\partial z} + F_{pv}\frac{\partial v}{\partial z} + F_{pp}\frac{\partial p}{\partial z} \end{array}$$

which are equal to zero when calculated at the stationary point. We obtain a system of three equations in three variables. Under standard regularity conditions the matrix of second derivatives is nonsingular and we can solve for the derivatives of g^*,v^*, and p^*:

$$\begin{bmatrix} \frac{\partial g^*}{\partial z} \\ \frac{\partial v^*}{\partial z} \\ \frac{\partial p^*}{\partial z} \end{bmatrix} = \begin{bmatrix} F_{gg} & F_{gv} & F_{gp} \\ F_{vg} & F_{vv} & F_{vp} \\ F_{pg} & F_{pv} & F_{pp} \end{bmatrix}^{-1} \begin{bmatrix} -F_{ga} \\ -F_{va} \\ -F_{pa} \end{bmatrix}$$

Specifically,

$$\begin{array}{l} \frac{\partial g^*}{\partial z} = -\frac{A_{11}}{\det A}F_{gz} - \frac{A_{21}}{\det A}F_{vz} - \frac{A_{31}}{\det A}F_{pz} \\ \frac{\partial v^*}{\partial z} = -\frac{A_{12}}{\det A}F_{gz} - \frac{A_{22}}{\det A}F_{vz} - \frac{A_{32}}{\det A}F_{pz} \\ \frac{\partial p^*}{\partial z} = -\frac{A_{13}}{\det A}F_{gz} - \frac{A_{23}}{\det A}F_{vz} - \frac{A_{33}}{\det A}F_{pz} \end{array}$$

where

$$\begin{array}{ccc} A_{11} \equiv F_{vv}F_{pp} - F_{vp}^2 & A_{12} \equiv -(F_{vg}F_{pp} - F_{vp}F_{pg}) & A_{13} \equiv F_{vg}F_{pv} - F_{vv}F_{pg} \\ A_{21} \equiv -(F_{gv}F_{pp} - F_{gp}F_{pv}) & A_{22} \equiv F_{gg}F_{pp} - F_{gp}^2 & A_{23} \equiv -(F_{gg}F_{pv} - F_{gv}F_{pg}) \\ A_{31} \equiv F_{gv}F_{vp} - F_{gp}F_{vv} & A_{32} \equiv -(F_{gg}F_{vp} - F_{gp}F_{vg}) & A_{33} \equiv F_{gg}F_{vv} - F_{gv}^2 \end{array}$$

and

$$\det A = F_{gg}F_{vv}F_{pp} + F_{gv}F_{vp}F_{pg} + F_{gp}F_{vg}F_{pv} - (F_{gp}^2F_{vv} + F_{gv}^2F_{pp} + F_{gg}F_{vp}^2).$$

If the objective function $F(..)$ is sufficiently concave in g, v, and p, then F_{gg}, F_{vv}, and F_{pp} are negative enough to ensure that $\det A < 0$ and the values of A_{11}, A_{22}, and A_{33} are sufficiently positive and high, the signs of $\frac{\partial g^*}{\partial z}$, $\frac{\partial v^*}{\partial z}$, and $\frac{\partial p^*}{\partial z}$ are the same as the signs of F_{gz}, F_{vz}, and F_{pz}, respectively.

Using the same argument it is possible to prove that the sign of $\frac{\partial n^*}{\partial z}$ is the same as the sign of F_{nz}, and that the signs of $\frac{\partial g^*}{\partial s}$, $\frac{\partial v^*}{\partial s}$, and $\frac{\partial p^*}{\partial s}$ are the same as the signs of F_{gs}, F_{vs}, and F_{ps}, respectively.

A.2 First order conditions

Maximizing (5) with respect to the three choice variables yields the following FOCs

$$F_p = -l \cdot \left[P_p^c(v,a,p,y,n) \cdot P^d(v,a,p,n) + P^c(.) \cdot P_p^d(.)\right] = 0$$

$$F_v = -U'(v,g,y,s,n)\frac{1}{1-sn} - l \cdot \left[P_v^c(v,a,p,y,n) \cdot P^d(v,a,p,n) + P^c(.) \cdot P_v^d(.)\right] = 0$$

$$F_g = -U'(v,g,y,s,n)\frac{1}{1-sn} + 1 = 0$$

A.2.1 Comparative statics with respect to y

$$\begin{aligned} F_{py} = -l \cdot \left[P_{py}^c \cdot P^d + P_y^c \cdot P_p^d\right] < 0 \quad &\rightarrow \quad \frac{\partial p^*}{\partial y} \lessgtr 0 \\ F_{vy} = -U''(.)\tfrac{1}{(1-sn)^2} - l \cdot \left[P_y^c \cdot P_v^d\right] \lessgtr 0 \quad &\rightarrow \quad \frac{\partial v^*}{\partial y} \lessgtr 0 \\ F_{gy} = -U''(.)\tfrac{1}{(1-sn)^2} > 0 \quad &\rightarrow \quad \frac{\partial g^*}{\partial y} > 0 \end{aligned}$$

A.2.2 Comparative statics with respect to a

$$\begin{aligned} F_{pa} = -l \cdot \left[P_p^c \cdot P_a^d + P_a^c \cdot P_p^d\right] \gtrless 0 \quad &\rightarrow \quad \frac{\partial p^*}{\partial a} \gtrless 0 \\ F_{va} = -l \cdot \left[P_{va}^c \cdot P^d + P_v^c \cdot P_a^d + P_a^c \cdot P_v^d + P^c \cdot P_{va}^d\right] > 0 \quad &\rightarrow \quad \frac{\partial v^*}{\partial a} > 0 \\ F_{ga} = 0 \quad &\rightarrow \quad \frac{\partial g^*}{\partial a} = 0 \end{aligned}$$

A.3 First order condition for n^*

From 6 we can form the first order derivative with respect to n:

$$F_n = U'(.)\left[\frac{(y-v-g)s}{(1-sn)^2}\right] - l \cdot \left[P_n^c(v,a,p,y,n) \cdot P^d(v,a,p,n) + P^c(.) \cdot P_n^d(.)\right] = 0$$

A.3.1 Comparative statics with respect to y and a

$$\begin{aligned} F_{ny} = U''(.)\tfrac{(y-v-g)s}{(1-sn)^3} + U'(.)\tfrac{s}{(1-sn)^2} - l \cdot \left[P_{ny}^c \cdot P^d + P_y^c \cdot P_n^d\right] \gtrless 0 \quad &\rightarrow \quad \frac{\partial n^*}{\partial y} \gtrless 0 \\ F_{na} = -l \cdot \left[P_{na}^c \cdot P^d + P_n^c \cdot P_a^d + P_a^c \cdot P_n^d + P^c \cdot P_{na}^d\right] \gtrless 0 \quad &\rightarrow \quad \frac{\partial n^*}{\partial a} \gtrless 0 \end{aligned}$$

A.4 The effect of higher income inequality, s

We do not have an experimental treatment for this effect. The model yields predictions about the effect of income inequality on individuals' policy preferences. This amounts to studying the impact of s on g^*, v^*, and p^*. This exercise is interesting because not only might our subjects interpret the economic treatment as a decrease in average income, but also as an increase in income inequality. This is realistic because immigrants are more likely to lose their jobs due to the pandemic, and thus bear a higher risk of becoming poorer compared to natives. This reasoning might help explain what we observe in the data about the economic treatment.

By comparative statics, we have

$$\begin{array}{rcl} F_{gs} = U''(.)\frac{(v+g)n}{(1-sn)^3} - U'(.)\frac{n}{(1-sn)^2} < 0 & \rightarrow & \frac{\partial g^*}{\partial s} < 0 \\ F_{vs} = F_{gs} < 0 & \rightarrow & \frac{\partial v^*}{\partial s} < 0 \\ F_{ps} = 0 & \rightarrow & \frac{\partial p^*}{\partial s} = 0 \end{array}$$

Here we see that desired total public spending $v^* + g^*$ decreases.

A.5 Heterogeneity Analysis

From our comparative statics in Appendices A.2.1, A.2.2 and A.3.1 we can derive the following:

$$F_{gyn} = -U'''(.)\frac{s(y-g-v)}{(1-sn)^4} - U''(.)\frac{2s}{(1-sn)^3} \gtrless 0 \tag{9}$$

$$F_{vyn} = -U'''(.)\frac{s(y-g-v)}{(1-sn)^4} - U''(.)\frac{2s}{(1-sn)^3} - l \cdot \left[P^c_{ny} \cdot P^d_v + P^c_y \cdot P^d_{nv}\right] \gtrless 0 \tag{10}$$

$$F_{pyn} = -l \cdot \left[P^c_{pyn} \cdot P^d + P^c_{py} \cdot P^d_n + P^c_{yn} \cdot P^d_p + P^c_y \cdot P^d_{pn}\right] \gtrless 0 \tag{11}$$

$$F_{gan} = 0 \tag{12}$$

$$F_{van} = -l \cdot \left[P^c_{na} \cdot P^d_v + P^c_n \cdot P^d_{va} + P^c_{va} \cdot P^d_n + P^c_a \cdot P^d_{vn} + P^c_v \cdot P^d_{an}\right] \gtrless 0 \tag{13}$$

$$F_{pan} = -l \cdot \left[P^c_{na} \cdot P^d_p + P^c_{np} \cdot P^d_a + P^c_a \cdot P^d_{np} + P^c_p \cdot P^d_{na}\right] \gtrless 0 \tag{14}$$

Analogous to the calculations in Appendix A.1, the signs of these third-order derivatives of $F(.)$ correspond to the second-order derivatives of p^*, g^*, v^* and n^* if $U(.)$, $P^c(.)$ and $P^d(.)$ satisfy certain regularity conditions. Thus, (9) and (10) together yield the sign of $\frac{\partial^2(g^*+v^*)}{\partial y \partial n}$, (11) gives the sign of $\frac{\partial^2 p^*}{\partial y \partial n}$, the sign of (12) and (13) combined informs us about the sign of $\frac{\partial^2(g^*+v^*)}{\partial a \partial n}$, (13) corresponds to $\frac{\partial^2 v^*}{\partial a \partial n}$ and (14) to $\frac{\partial^2 p^*}{\partial a \partial n}$.

The above calculations show that, theoretically, existing levels of immigration can either strengthen or weaken the treatment effects on residents' willingness to pay taxes, their willingness to contribute to the health care system, and their preference to prioritize medical care, in the presence of negative economic and health shocks.

Empirically we find that $\frac{\partial^2(g^*+v^*)}{\partial y \partial n} < 0$: the effect of the pessimistic economic treatment on tax propensity has a weaker effect in areas where immigration is larger. We also find that this relationship holds true when residents focus on health care ($\frac{\partial^2 v^*}{\partial y \partial n} < 0$), which suggests that (10) is negative ($F_{vyn} < 0$). These results also suggest that $F_{gyn} + F_{vyn} < 0$, which is the

case if the risk of getting infected increases by a large amount when everybody is poorer (high $\left|P^c_y\right|$) but death/injury risk deacreases by a large amount when the share of immigrants is higher (high $\left|P^d_{nv}\right|$). In other words, compared to other residents, natives living in high-immigration areas seem to be "less worried" of being injured by the virus as long as they have access to adequate health care. On the other hand, given that contagion probabilities themselves also mount together with immigration numbers, natives will want more health care overall.

As of (11), the effect is again ambiguous, theoretically. Empirically we find that $\frac{\partial^2 p^*}{\partial a \partial n} > 0$, which implies that $F_{pyn} > 0$. This holds if P^c_{pyn} is strongly negative and the effect of $P^c_{pyn} \cdot P^d$ dominates all the other terms. This means that in high-immigration regions the negative effect of prioritizing medical care when people are poorer is stronger than in other regions.

$F_{gan} = 0$ means that n has no effect on how severity affects tax preferences. The reason is that a only affects contagion and injury probabilities, which are independent of g. Empirically we find $\frac{\partial^2 (g^* + v^*)}{\partial a \partial n} > 0$ and $\frac{\partial^2 v^*}{\partial a \partial n} = 0$. Our model cannot account for this empirical result, suggesting that some form of "rally around the flag" effect might be triggered by pandemic severity. It might induce people to contribute more to general public goods, specifically in regions where immigration is higher, probably because residents perceive immigrants as less different and more integrated.

The sign of F_{van} is ambiguous. Empirically we find that $\frac{\partial^2 v^*}{\partial a \partial n}$ has a positive sign but it is not statistically significant.

Finally, F_{pan} can be either positive or negative theoretically. Empirically we find that $\frac{\partial^2 p^*}{\partial a \partial n} = 0$.

B Questionnaire

Public Budget, Social Trust and Socio-Economic Crises

Investigators:

- Gianmarco Daniele, Università Bocconi, Università di Milano;
- Andrea Martinangeli, Max Planck Institute for Tax Law and Public Finance;
- Francesco Passarelli, Università Bocconi, Università di Torino;
- Willem Sas, University of Stirling, KU Leuven;
- Lisa Windsteiger, Max Planck Institute for Tax Law and Public Finance;

Survey location: Italy

Target sample: random sample of the adult population representative over age, gender and income (6000 respondents)

Survey questionnaire draft

We are non-partisan researchers from an independent research institute.
We would like to know your **personal views** on matters of public interest.
It is very important that you provide your **true opinion**, and that you **read all the questions very carefully before answering**. If you do not know the answer to some question, please provide us with a careful guess. However, please be sure to spend enough time reading and understanding the question. Responding without adequate effort or skipping many questions may result in your responses being flagged for low quality and you may not receive your payment.
It is very important that you **complete the entire survey,** once you've started. It should take approximately 20 minutes to complete.

Note: Your participation in this study is purely voluntary. No identifying information will be recorded by the researchers. Results may include summary data, but you will never be identified. The data will be stored on our servers and will be kept confidential. The anonymous data collected may be made available to other researchers for replication purposes.

1. Yes, I would like to participate in this survey. / No, I would not like to participate in this survey.
2. What is your gender? (M/F)
3. Please indicate your age:
4. What is your area of residence? [Country dependent]
North, NorthE, NorthW, Centre, South, Islands
5. What is your marital status?
   a. Single (Never Married/Widowed/Separated/Divorced)
   b. Married /Civil partnership/Cohabiting
6. Please indicate how many people live in your household (including yourself): Adults… Children…
7. What is the combined **monthly** income of your **household, after taxes**?
[Please include all your household income sources: salaries, scholarships, pension and Social Security benefits, dividends from shares, income from rental properties, child support and alimony etc. We are not interested in the type of income source, only in the total monthly income earned by all the members of your household together.]
   1. <2000
   2. 2000-4000
   3. 4000-6000
   4. 6000-8000
   5. 8000-10000
   6. >10000

8. This question's only purpose is that of allowing us to check the quality of the answers we received so far. To continue with the questionnaire, please enter 30 to proceed with the questionnaire.

Information condition display *(see Information conditions attachments. A respondent receives only one of the treatments.)*
Manipulation check: Please re-enter the information you have seen on the previous page.

++++ OUTCOME VARIABLE QUESTIONS

VOTING

10. Imagine the national elections were coming up next [Sunday]. Which party would you vote for? [insert parties per country – this version: Italy]
    a. Lega
    b. Partito democratico
    c. M5S
    d. Forza Italia
    e. Fratelli d'italia
    f. Italia viva
    g. Altro. Specificare:_____
    h. Non voterei

TRUST

11. On a scale from 1 to 10, do you think one can never be careful enough in dealing with people (1), or would you say that most people can be trusted (10)?

NATIONAL SUPPORT

12. On a scale from 0 to 10, how much do you trust each of the following: (1= not at all; 10= complete trust)
    a. Your national politicians
    b. Your national government
    c. The police
    d. Your public broadcaster
    e. Your national scientists/experts

ATTACHMENT

13. People may feel different degrees of attachment to their town or village, to their country or to Europe. On a scale from 1 to 10, how attached do you feel to
    a. [Country] (1= not at all, 10= a lot)
    b. Your town/village (1= not at all, 10= a lot)
    c. Europe (1= not at all, 10= a lot)

EU SUPPORT

14. On a scale from 1 to 10, how much do you trust the European Union (1= not at all, 10= a lot).

15. On a scale from 1 to 10, would you say that [Country] has benefited from being a member of the European Union? (1= not at all, 10= a lot)

16. If there was a referendum next Sunday with the following question: "Should [Country] remain a member of the European Union or leave the European Union", how would you vote?
    a. Remain in the European Union
    b. Leave the European Union

c. I don't know

17. On a scale from 1 to 10, do you think the EU is better placed to solve problems than national or regional governments are? (1= not at all; 10= best placed)

IMMIGRATION

18. On a scale from 1 to 10, do you think current immigration in your country is too low (1) or too high (10)?

19. On a scale from 1 to 10, how much do you think the public healthcare system in your country should prioritise [nationality] over immigrants (1= not at all, 10= a lot)

GOVERNMENT

20. People have different views on what the responsibilities of the government should or should not be. On a scale from 1 to 10, do you think the government should
    a. levy taxes to subsidise the poor (1= not at all; 10= a lot)
    b. regulate markets (1= not at all; 10= a lot)
    c. levy taxes to ensure adequate unemployment insurance (1= not at all; 10= a lot)
    d. levy taxes to ensure adequate health care (1= not at all; 10= a lot)
    e. levy taxes to ensure a reasonable standard of living for the old (1= not at all; 10= a lot)

21. On a scale from 1 to 10, would you say that
    a. the *overall* fiscal burden in your country is too low (1) or too high (10)?
    b. *your* fiscal burden is too low (1) or too high (10)

LIBERALISM vs POPULISM

22. On a scale from 1 to 10, do you agree with the following statements? (1= fully disagree; 10= fully agree)
    a. Privacy rights should always be upheld/protected, even if they hinder efforts to combat crime.
    b. The people, and not politicians, should make our most important policy decisions.
    c. Politicians should have no influence over the content of public broadcasters.
    d. Having a strong leader is good for [Country] even if this leader breaks the rules to obtain results.
    e. A handful of powerful individuals influences political decisions even in democracies.

23. How much of your personal freedom would you be willing to give up to
    a. protect your own safety? (1= none; 10= a lot)
    b. protect the safety of your family? (1= none; 10= a lot)
    c. protect public safety? (1= none; 10= a lot)

UNIVERSAL vs COMMUNAL

24. On a scale from 1 to 10, do you agree that
    a. everyone should be treated equally as global citizens, with fundamental rights (1= not at all; 10= fully agree)
    b. everyone should be loyal to the community they are part of, and respect its traditions (1= not at all; 10= fully agree)

GLOBALISATION

25. People have different views about market globalization. On a scale from 1 to 10, do you favour completely globalised markets (1), complete national self-sufficiency (10).

TEXT QUESTION HERE (see end of document for details; randomly placed here or at the beginning of outcome questions block)

EU SUPPORT: COVID

26. On a scale from 1 to 10, do you think the European Union is managing the COVID-19 epidemic well? (1= not at all, 10= absolutely)

27. On a scale from 1 to 10, do you think your national government is managing the COVID-19 epidemic well? (1= not at all, 10= absolutely)

28. Which of the following should mostly fund the economic consequences of the COVID-19 crisis?
    a. Your national government
    b. The European Union
    c. Your regional government

29. On a scale from 1 to 10, do you think there should be solidarity between EU member states to fund the COVID-19 costs? (1= there should not be; 10= there should be)

Health/Crisis experience controls

30. On a scale from 1 to 10, to what extent do the following statements describe your behavior during the COVID-19 confinement period? (1= not at all; 10= a lot)
    a. I worked from home
    b. I kept more distance with people than usual
    c. I stocked up on food
    d. I bought face masks
    e. I cleaned my house/apartment with disinfectant products
    f. I tried to get or got tested for COVID-19
    g. I have donated or volunteered to help combat COVID-19

31. Do you have relatives who are risk patients of COVID-19?
    a. Yes
    b. No
    c. Don't know

32. Please indicate whether the following applies to you:
    a. I contracted the virus (YES/NO/DON'T KNOW)
    b. Someone in my family or close to me has contracted the virus (YES/NO/DON'T KNOW)
    c. At least one of my friends/acquaintances has contracted the virus (YES/NO/DON'T KNOW)

33. On a scale from 1 to 10, do the following statements about the COVID-19 confinement apply to you personally? (1= not at all; 10= a lot)
    a. Living together with my family/household was difficult
    b. I was concerned about my health
    c. Not seeing my friends or family was difficult
    d. I thought the social isolation rules were too strict

34. On a scale from 1 to 10, and when you think about the COVID-19 crisis, how much of your time did you feel:
    a. Relaxed (1= never, 10= always)
    b. Angry (1= never, 10= always)
    c. Nervous (1= never, 10= always)
    d. Active (1= never, 10= always)

e. Anxious (1= never, 10= always)

Economic distress controls

35. On a scale from 1 to 10, and when you think about COVID-19 crisis, do you think that
    a. there were problems with food supplies in [Country] (1= not at all; 10= a lot)
    b. There will be negative financial consequences for yourself and your family in the future (1= not at all; 10= a lot)
    c. There will be negative financial consequences for the town in which you live in the future (1= not at all; 10= a lot)

36. Is the COVID-19 crisis affecting your job?
    a. Yes, mostly positively
    b. Yes, mostly negatively
    c. Not significantly
    d. I don't have a job

37. Is the COVID-19 crisis affecting the job of people close to you?
    a. Yes, mostly positively
    b. Yes, mostly negatively
    c. Not significantly

38. If you would lose your job because of the crisis, how quickly do you think you would find a new job once the economy picks up?
    a. In a few weeks
    b. In a few months
    c. After a year

OTHER

39. Which media do you most frequently get information on world happenings from?
    (If you don't find your preferred outlet, please indicate the one that most closely represents it)
    a. TV News
    b. Social media (social networks, blogs)
    c. Radio/podcasts
    d. Online newspaper/newspaper app
    e. Print newspaper
    f. I don't follow the news

40. What is the highest level of education you have completed?
    a. Primary school
    b. Junior high school (middle school)
    c. Professional education
    d. Higher education (science/humanities)
    e. University degree
    f. Doctoral degree

41. What is your current employment status?
    a. Employed full-time
    b. Employed part-time
    c. Self-employed/small business owner
    d. Unemployed and looking for a job
    e. Not working and not looking for a job/Long-term sick or disabled

f. Full-time parent, homemaker
g. Retired
h. Student/Pupil

42. Were you born in [Country]?

43. Were both of your parents born in [Country]??

44. What is your province of residence?

45. Where do you see yourself on the political spectrum, where 1 represents the left and 10 represents the right?

46. Did you vote in the last election?

TEXT QUESTION:

For educational purposes, we are considering to inform students about the importance of the European Union using real texts.
We selected a speech given in front of the European Parliament, which promotes European integration.
It would help us if you could take 5 minutes of your time to read this speech and give us your opinion. Please notice that whether you agree to read the text or not will not affect your payment.

Yes, I want to read the text.
No, I don't want to read the text.

Next page: Thank you very much for your help, you will get to read the speech and give your opinion at the end of this survey.

At the end of the survey (if they clicked yes):

Thank you for agreeing to review the speech on EU integration which we plan to use for educational purposes. You can find the speech below. You will be able to provide us with your opinion on the next page.

Speech is displayed.

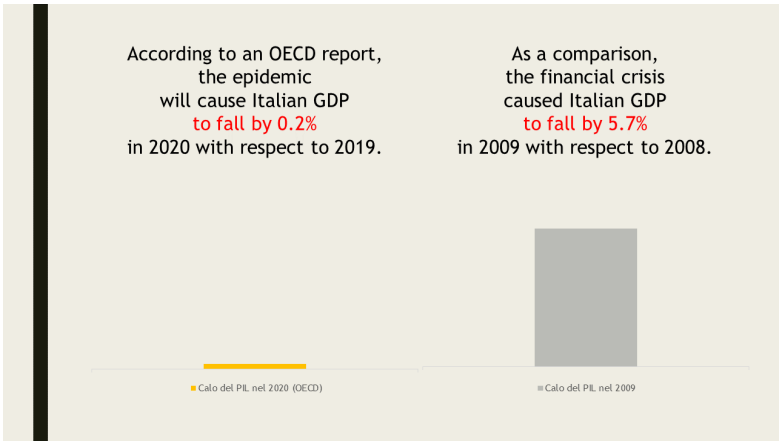
Question after speech:
On a scale from 1 to 10, do you think this text, a speech held by Emmanuel Macron in 2018, can be used to inform students of the advantages and importance of the European Union? (1= No, 10=Yes)

Debriefing
At the end of the survey we debrief the respondents to avoid them remaining with partial information about the consequences of the epidemic.

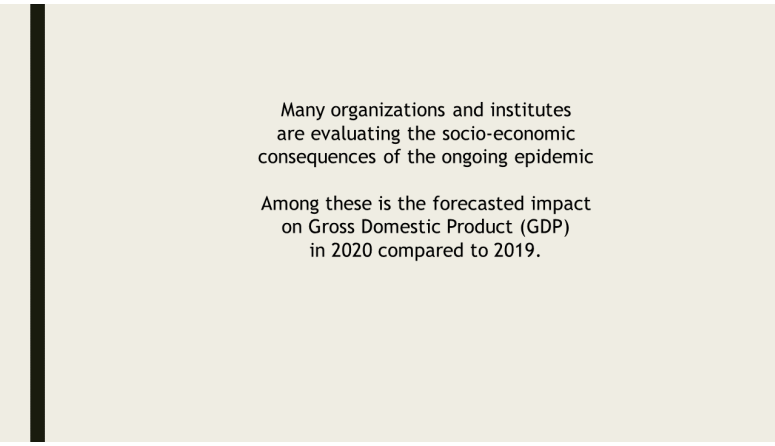
C Information conditions

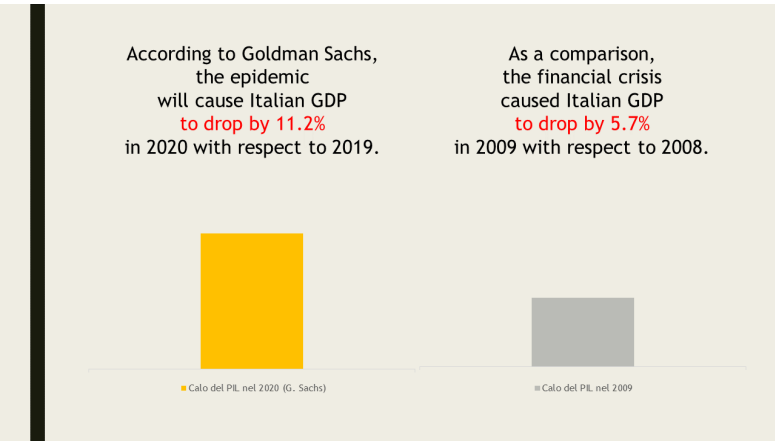
This section presents stills of the video frames presented to the respondents as part of the experimental design adopted (translated to English) and links to the videos (in Italian).

Optimistic economic Link: https://youtu.be/iOc8m4zcHjI



Pessimistic economic Link: https://youtu.be/-jT9eKtdOec





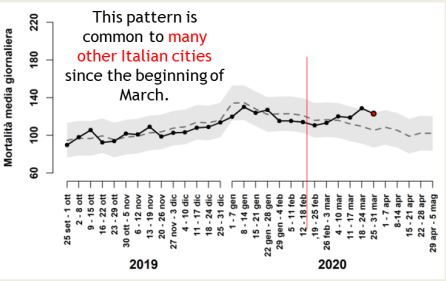
Optimistic health https://youtu.be/afVzOzb8egM

The Ministry of Health
computes the number of deaths expected
in a certain period of the year based on the
actual number of deaths observed in the same period
in the previous five years.

The number of expected deaths
is computed for each
of the major Italian cities.

This year, the real number of deaths
observed in some Italian cities since the beginning of the epidemic
is only slightly higher (+5%)
and even
substantially identical (+2%)
to the expected number.

This pattern is
common to many
other Italian cities
since the beginning of
March.



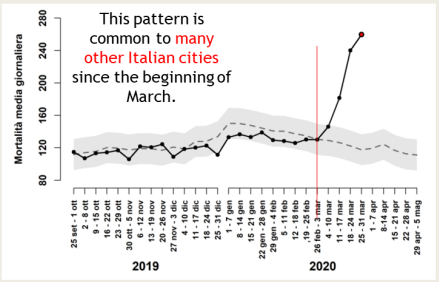
Pessimistic health https://youtu.be/MDUs_5poqE0

The Ministry of Health
computes the number of deaths expected
in a certain period of the year based on the
actual number of deaths observed in the same period
in the previous five years.

The number of expected deaths
is computed for each
of the major Italian cities.

This year, the real number of deaths
observed in some Italian cities since the beginning of the epidemic
is more than double (+126%)
and even
almost triple (+195%)
the expected number.

This pattern is
common to many
other Italian cities
since the beginning of
March.



D Tables

D.1 Full regression tables (Section 7)

	Economic dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Pessimistic info. = 1	0.104***	0.008	0.068**	0.111***
	(0.031)	(0.030)	(0.032)	(0.035)
Unemployed	-0.033	-0.071	0.091	0.135**
	(0.066)	(0.087)	(0.066)	(0.067)
College	-0.187***	0.110***	-0.052	-0.253***
	(0.035)	(0.042)	(0.037)	(0.037)
Italian native	0.098	0.064	0.131	0.005
	(0.124)	(0.100)	(0.097)	(0.121)
Female	0.079**	-0.149***	-0.037	0.137***
	(0.036)	(0.038)	(0.034)	(0.034)
Age = 31-40	0.203**	-0.147**	0.182***	0.154**
	(0.082)	(0.065)	(0.063)	(0.074)
Age = 41-50	0.287***	-0.028	0.296***	0.262***
	(0.061)	(0.056)	(0.059)	(0.059)
Age = 51-60	0.201***	0.061	0.432***	0.270***
	(0.064)	(0.070)	(0.071)	(0.060)
Age = 61-70	0.172**	0.159**	0.355***	0.130*
	(0.070)	(0.062)	(0.069)	(0.071)
Family size = 1	-1.509***	-0.781***	-0.312*	-0.933***
	(0.121)	(0.127)	(0.174)	(0.115)
Family size = 2	-1.553***	-0.828***	-0.360**	-0.940***
	(0.120)	(0.112)	(0.154)	(0.105)
Family size = 3	-1.420***	-0.784***	-0.254	-0.807***
	(0.112)	(0.109)	(0.161)	(0.106)
Family size = 4	-1.466***	-0.851***	-0.311*	-0.844***
	(0.122)	(0.109)	(0.161)	(0.118)
Family size = 5	-1.553***	-0.886***	-0.356**	-0.757***
	(0.145)	(0.134)	(0.176)	(0.134)
Family size = 6	-1.503***	-0.753***	-0.230	-0.733***
	(0.189)	(0.187)	(0.214)	(0.212)
Family size = 7	-1.350***	-1.282***	-0.642	-1.045***
	(0.202)	(0.256)	(0.423)	(0.292)
Family size = 8	-1.265***	-0.017	-0.059	-0.448
	(0.300)	(0.172)	(0.357)	(0.358)
Income tertile = 2	-0.105**	0.149***	0.025	-0.076
	(0.052)	(0.045)	(0.044)	(0.049)
Income tertile = 3	-0.085	0.260***	-0.030	-0.053
	(0.057)	(0.044)	(0.054)	(0.052)
Single	-0.036	-0.046	-0.110*	-0.077
	(0.047)	(0.052)	(0.062)	(0.048)
Population (prov., 100000)	-0.000	0.003***	0.001	-0.000
	(0.003)	(0.001)	(0.001)	(0.002)
Immigrant pop. (% prov.)	0.030	0.007	0.020	0.006
	(0.036)	(0.020)	(0.041)	(0.031)
Constant	1.220***	0.632***	-0.063	0.776***
	(0.183)	(0.156)	(0.154)	(0.182)
Observations	3,003	3,003	3,003	3,003
R-squared	0.044	0.050	0.046	0.055

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table D1: Full regression results (including covariates) for Table 3

	Health dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Pessimistic info. = 1	0.071*	0.008	-0.031	0.054
	(0.036)	(0.038)	(0.040)	(0.038)
Unemployed	-0.014	0.041	0.059	0.030
	(0.066)	(0.080)	(0.062)	(0.068)
College	-0.136***	0.142***	-0.074	-0.204***
	(0.039)	(0.043)	(0.047)	(0.037)
Italian native	0.111	0.031	-0.034	0.082
	(0.106)	(0.094)	(0.100)	(0.106)
Female	0.105***	-0.257***	-0.025	0.187***
	(0.040)	(0.036)	(0.039)	(0.035)
Age = 31-40	0.192**	0.038	0.283***	0.171**
	(0.076)	(0.061)	(0.058)	(0.065)
Age = 41-50	0.303***	0.038	0.419***	0.281***
	(0.063)	(0.063)	(0.056)	(0.067)
Age = 51-60	0.246***	0.179***	0.480***	0.248***
	(0.061)	(0.062)	(0.066)	(0.065)
Age = 61-70	0.253***	0.245***	0.422***	0.228***
	(0.062)	(0.068)	(0.073)	(0.078)
Family size = 1	-0.835***	-0.304	-0.261	-0.813***
	(0.267)	(0.224)	(0.306)	(0.186)
Family size = 2	-1.073***	-0.179	-0.131	-0.726***
	(0.211)	(0.234)	(0.307)	(0.182)
Family size = 3	-0.876***	-0.170	-0.149	-0.633***
	(0.216)	(0.228)	(0.311)	(0.174)
Family size = 4	-0.950***	-0.172	-0.142	-0.643***
	(0.216)	(0.233)	(0.307)	(0.180)
Family size = 5	-0.943***	-0.058	-0.213	-0.768***
	(0.226)	(0.245)	(0.316)	(0.185)
Family size = 6	-0.946***	-0.044	-0.178	-0.595**
	(0.250)	(0.292)	(0.361)	(0.250)
Family size = 7	-1.767***	0.522*	-0.154	-0.859**
	(0.289)	(0.263)	(0.468)	(0.336)
Family size = 8	-1.247***	-0.045	-0.426	-0.878**
	(0.414)	(0.414)	(0.456)	(0.392)
Income tertile = 2	-0.083*	0.115**	-0.004	-0.120***
	(0.043)	(0.045)	(0.049)	(0.042)
Income tertile = 3	-0.132***	0.119*	-0.081	-0.228***
	(0.045)	(0.062)	(0.058)	(0.042)
Single	-0.200***	0.043	0.009	-0.085*
	(0.047)	(0.047)	(0.059)	(0.044)
Population (prov., 100000)	0.001	0.000	0.003**	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Immigrant pop. (% prov.)	0.007	-0.062**	0.061	-0.011
	(0.041)	(0.029)	(0.039)	(0.039)
Constant	0.823***	0.293	-0.330	0.510**
	(0.239)	(0.251)	(0.363)	(0.255)
Observations	2,956	2,956	2,956	2,956
R-squared	0.068	0.044	0.047	0.068

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table D2: Full regression results (including covariates) for Table 4

D.2 Sample balance and population representativeness

Table D3 reports sample balance checks by information condition and economic and health dimensions over individual, regional and provincial observables. Column 1 reports the average of the reported variables over the full sample. Columns 2 to 7 report the averages by subgroup, economic or health, and optimism or pessimism within each. Δ indicates the difference between

the Pessimistic and Optimistic mean of each variable, reported with its standard deviation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Full sample	Economic dimension			Health dimension		
		Pessimist	Optimist		Pessimist	Optimist	
	mean	mean	mean	Δ	mean	mean	Δ
Unemployed	0.090	0.079	0.090	0.011	0.086	0.105	0.018*
	(0.286)	(0.269)	(0.286)	(0.282)	(0.281)	(0.306)	(0.089)
College	0.405	0.386	0.406	0.021	0.397	0.432	0.035*
	(0.491)	(0.487)	(0.491)	(0.250)	(0.490)	(0.496)	(0.054)
Italian born	0.964	0.966	0.966	0.000	0.962	0.962	-0.000
	(0.186)	(0.182)	(0.180)	(0.948)	(0.191)	(0.191)	(0.994)
Female	0.502	0.495	0.515	0.020	0.496	0.504	0.008
	(0.500)	(0.500)	(0.500)	(0.271)	(0.500)	(0.500)	(0.660)
Age	1.947	1.953	1.962	0.009	1.978	1.895	-0.082*
	(1.353)	(1.356)	(1.342)	(0.857)	(1.371)	(1.343)	(0.099)
Family size	3.103	3.121	3.104	-0.017	3.078	3.107	0.028
	(1.204)	(1.210)	(1.218)	(0.702)	(1.203)	(1.186)	(0.517)
Income classif.	1.895	1.900	1.900	-0.001	1.919	1.863	-0.055*
	(0.803)	(0.804)	(0.798)	(0.982)	(0.814)	(0.795)	(0.061)
Single	0.372	0.378	0.373	-0.005	0.365	0.371	0.006
	(0.483)	(0.485)	(0.484)	(0.764)	(0.482)	(0.483)	(0.740)
Reg. population (×100k)	50.384	49.982	51.022	1.040	50.708	49.837	-0.871
	(26.624)	(26.651)	(26.795)	(0.286)	(26.727)	(26.327)	(0.371)
GDP p.c.	38.345	38.191	38.651	0.460	38.382	38.160	-0.222
	(10.466)	(10.515)	(10.429)	(0.229)	(10.477)	(10.445)	(0.563)
Unemp. rate (15-64)	11.533	11.505	11.452	-0.053	11.532	11.645	0.113
	(5.857)	(5.863)	(5.786)	(0.804)	(5.881)	(5.900)	(0.600)
Life exp.	82.667	82.682	82.672	-0.010	82.665	82.650	-0.015
	(0.734)	(0.727)	(0.719)	(0.704)	(0.744)	(0.747)	(0.582)
Cum. daily new cases p.c.	0.004	0.004	0.004	-0.000	0.004	0.004	-0.000
	(0.003)	(0.003)	(0.003)	(0.951)	(0.003)	(0.003)	(0.506)
Cum. daily new deaths p.c.	0.001	0.001	0.001	-0.000	0.001	0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.895)	(0.001)	(0.001)	(0.530)
Immigrant pop. (prov. %)	0.410	0.351	0.467	0.116***	0.403	0.419	0.016
	(0.962)	(0.874)	(1.043)	(0.001)	(0.949)	(0.972)	(0.656)
Observations	5,982	1,524	1,484	3,008	1,485	1,483	2,968

Table D3: Sample balance table by optimist or pessimist information within the economic and health dimensions. Δ indicates the difference between the Pessimistic and Optimistic mean of each variable, reported with its standard deviation.
*** p<0.01, ** p<0.05, * p<0.1

Table D4 reports the differences in means between the covariates in each sample group here denoted c (economic or health dimension with optimist or pessimist information) with the rest of the sample, and their standard deviation. Somewhat abusing notation, Δ_{-c} denotes thus the comparison of covariate means in sample group c with the mean in the rest of the sample $-c$ pooling all other groups together. The differences are small and within statistically expected significance, testifying to the success of our randomisation.

	(1)	(2)	(3)	(4)
	Economic dimension		Health dimension	
	Pessimist	Optimist	Pessimist	Optimist
	Δ_{-c}	Δ_{-c}	Δ_{-c}	Δ_{-c}
Unemployed	-0.015*	-0.000	-0.005	0.020**
	(0.083)	(0.991)	(0.587)	(0.021)
College	-0.026*	0.001	-0.011	0.036**
	(0.073)	(0.925)	(0.470)	(0.015)
Italian born	0.002	0.003	-0.003	-0.003
	(0.681)	(0.613)	(0.649)	(0.641)
Female	-0.010	0.017	-0.009	0.002
	(0.502)	(0.261)	(0.560)	(0.892)
Age	0.008	0.019	0.041	-0.068*
	(0.846)	(0.631)	(0.311)	(0.091)
Family size	0.025	0.002	-0.033	0.005
	(0.484)	(0.950)	(0.363)	(0.889)
Income classif.	0.007	0.006	0.031	-0.043*
	(0.785)	(0.817)	(0.201)	(0.074)
Single	0.008	0.001	-0.009	-0.001
	(0.556)	(0.928)	(0.540)	(0.943)
Reg. population (×100k)	-0.541	0.848	0.430	-0.728
	(0.494)	(0.288)	(0.589)	(0.361)
GDP p.c.	-0.207	0.407	0.050	-0.246
	(0.505)	(0.194)	(0.874)	(0.433)
Unemp. rate (15-64)	-0.038	-0.108	-0.002	0.148
	(0.829)	(0.540)	(0.989)	(0.398)
Life exp.	0.020	0.007	-0.004	-0.024
	(0.356)	(0.765)	(0.873)	(0.284)
Cum. daily new cases p.c.	0.000	0.000	-0.000	-0.000
	(0.494)	(0.567)	(0.927)	(0.242)
Cum. daily new deaths p.c.	0.000	0.000	-0.000	-0.000
	(0.444)	(0.591)	(0.885)	(0.244)
Immigrant pop. (prov. %)	-0.079***	0.076***	-0.009	0.012
	(0.006)	(0.008)	(0.766)	(0.670)
Observations	5,982	5,982	5,982	5,982

Table D4: Differences in covariate means Δ_{-c} between each sample group c (economic or health dimension with optimist or pessimist information) with the rest of the sample $-c$.
*** p<0.01, ** p<0.05, * p<0.1

Table D5 reports the population and sample frequencies of the variables against which we ensured representativeness of the sample. As can be seen, differences in frequencies between population and sample were small, reassuring us that we managed to hit our target quotas.

Variable	2020 Population size	Population freq.	Sample freq.
Age classes			
18-30	7896585	19.49	20.21
31-40	6974751	17.22	18.42
41-50	9146683	22.58	23.06
51-60	9263409	22.86	23.06
61-70	7232965	17.85	15.24
Region			
Abruzzo	1293941	2.17	1.84
Basilicata	553254	0.93	1.12
Calabria	1894110	3.18	2.71
Campania	5712143	9.58	9.27
Emilia-Romagna	4464119	7.48	7.65
Friuli-Venezia Giulia	1206216	2.02	2.26
Lazio	5755700	9.65	10.26
Liguria	1524826	2.56	2.43
Lombardia	10027602	16.81	16.25
Marche	1512672	2.54	2.93
Molise	300516	0.50	0.47
Piemonte	4311217	7.23	7.55
Puglia	3953305	6.63	8.15
Sardegna	1611621	2.70	3.36
Sicilia	4875290	8.17	7.81
Toscana	3692555	6.19	5.47
Trentino Alto Adige	1078069	1.81	1.10
Umbria	870165	1.46	1.14
Valle d'Aosta	125034	0.21	0.12
Veneto	4879133	8.18	8.12
Gender			
Males	29050096	48.71	49.78
Females	30591392	51.29	50.22

Table D5: Comparison of population and sample frequencies of the quota variables against which representativeness was ensured via sample quotas: age, gender, and region of residence.

Highest education	2020 Population size	Population freq.	Sample freq.
Primary school	7828.21	0.16	9.50
Lower secondary school	14839.97	0.31	8.94
Upper and post-secondary	17614.05	0.37	49.58
University degree and higher	7498.66	0.16	40.53

D.3 Outcome variables summary statistics

Table D6 reports the mean and standard deviations of our outcome variables by crisis dimension and optimistic or pessimistic condition.

Table D6: Mean and standard deviations of the unstandardised responses to our main outcome variables by crisis dimension (economic and health) and optimistic or pessimistic condition.

	Optimist group		**Pessimist group**	
			Economic dimension	
	Mean	Standard deviation	Mean	Standard deviation
Native health care	5.20	3.11	5.52	3.12
Health care	7.17	2.27	7.18	2.29
Tax burden	8.18	1.87	8.31	1.78
Anti-immigrant	7.15	2.19	7.39	2.22
			Health dimension	
	Mean	Standard deviation	Mean	Standard deviation
Native health care	5.16	3.17	5.40	3.13
Health care	7.19	2.30	7.22	2.32
Tax burden	8.33	1.79	8.29	1.83
Anti-immigrant	7.19	2.19	7.32	2.19

D.4 Probit regressions for voting intentions

Tables D7 and D8 report probit estimations corresponding to the linear probability models reported in Tables 7 and 8. All the findings reported in Section 3.1 remain here confirmed. (Note that the p-values in Tables D7 and D8 were not corrected for multiple hypothesis testing. With appropriate corrections, the (weakly) significant effects in Table D7 would become insignificant.)

Table D7: Probit regression of voting intentions: economic dimension

	Economic dimension		
	Anti-immigration	Populism	Incumbent
Without controls			
Pessimistic info. = 1	0.075*	0.087**	-0.023
	(0.041)	(0.043)	(0.044)
- Constant	✓	✓	✓
Observations	3,003	3,003	3,003
With controls			
Pessimistic info. = 1	0.075*	0.082*	-0.033
	(0.041)	(0.043)	(0.044)
Omitted controls:			
- Individual	✓	✓	✓
- Provincial	✓	✓	✓
- Constant	✓	✓	✓
Observations	3,003	3,003	2,999

The table displays the results from Probit regressions of voting intentions on our pessimistic economic information intervention. Omitted individual controls: age, family size, italian born, single. Omitted provincial controls: population, immigrant population share. The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table D8: Probit regression of voting intentions: health dimension

	Health dimension		
	Anti-immigration	Populism	Incumbent
Without controls			
Pessimistic info. = 1	-0.024	-0.039	-0.057
	(0.046)	(0.042)	(0.038)
- Constant	✓	✓	✓
Observations	2,956	2,956	2,956
With controls			
Pessimistic info. = 1	-0.035	-0.049	-0.061
	(0.045)	(0.040)	(0.038)
Omitted controls:			
- Individual	✓	✓	✓
- Provincial	✓	✓	✓
- Constant	✓	✓	✓
Observations	2,953	2,953	2,953

The table displays the results from Probit regressions of voting intentions on our pessimistic health information intervention. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share. The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

D.5 Further analyses

Tables D9 and D10 report analyses of further outcome variables we included in our survey: a measure of the respondents' perceived own tax burden, their demand for tax-financed welfare state interventions in the areas of poverty relief, public healthcare service provision, unemployment income replacement and pension system. Neither of our economic nor health pessimistic information has any impact on these outcomes.

Table D9: OLS regression of perceived own tax burden and demand for tax-financed welfare state interventions: economic dimension

	Economic dimension				
	Own tax burden	Demand for tax-financed			
		Poverty rel.	Public health	Unempl. inc.	Pensions
Without controls					
Pessimistic info. = 1	0.005	-0.028	0.007	-0.024	0.004
	(0.030)	(0.034)	(0.032)	(0.032)	(0.035)
- Constant	✓	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003	3,003
R-squared	0.000	0.000	0.000	0.000	0.000
With controls					
Pessimistic info. = 1	0.013	-0.025	0.008	-0.025	0.010
	(0.030)	(0.031)	(0.030)	(0.029)	(0.033)
Omitted controls:					
- Individual	✓	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓	✓
- Constant	✓	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003	3,003
R-squared	0.049	0.037	0.050	0.039	0.052

The table displays the results from OLS regressions of perceived own tax burden and demand for tax-financed poverty programmes, public healthcare, unemployment income replacement and pensions. Omitted individual controls: age, family size, italian born, single. Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table D10: OLS regression of perceived own tax burden and demand for tax-financed welfare state interventions: health dimension

		Health dimension			
	Own tax burden	Demand for tax-financed			
		Poverty rel.	Public health	Unempl. inc.	Pensions
Without controls					
Pessimistic info. = 1	-0.054	-0.015	0.014	-0.003	-0.009
	(0.037)	(0.038)	(0.038)	(0.039)	(0.039)
- Constant	✓	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956	2,956
R-squared	0.001	0.000	0.000	0.000	0.000
With controls					
Pessimistic info. = 1	-0.062*	-0.018	0.008	-0.011	-0.023
	(0.037)	(0.040)	(0.038)	(0.039)	(0.039)
Omitted controls:					
- Individual	✓	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓	✓
- Constant	✓	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956	2,956
R-squared	0.057	0.041	0.044	0.038	0.050

The table displays the results from OLS regressions of perceived own tax burden and demand for tax-financed poverty programmes, public healthcare, unemployment income replacement and pensions. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

E Education level: main results split sample

Tables E11 and E12 split the sample by education level to check the robustness of our results presented in Section 7 to the respondents' having obtained or not a college degree. The results presented in Section 7 are robust to this analysis.

Concenring the economic dimension in Table E11, both respondents who are and are not college educated report greater desire to prioritise natives in healthcare and a general dissatisfaction with current immigration levels. Additionally, we observe an increase in the perception that the tax burden is excessive among college educated individuals.

Table E11: OLS regression of immigration sentiments: economic dimension, split sample by education level

	Economic dimension			
	Native health care	Health care	Tax burden	Anti immigration
College degree				
Pessimistic info. = 1	0.118**	0.033	0.090**	0.111*
	(0.057)	(0.047)	(0.044)	(0.058)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	1,189	1,189	1,189	1,189
R-squared	0.049	0.050	0.062	0.053
No college degree				
Pessimistic info. = 1	0.102**	-0.013	0.048	0.106**
	(0.050)	(0.044)	(0.048)	(0.044)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	1,814	1,814	1,814	1,814
R-squared	0.039	0.061	0.051	0.049

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic economic information intervention, split by respondent education level (college degree or no college degree). Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share. The regressions control for regional fixed effects.
Robust standard errors are clustered at province level. Robust p-values corrected for multiple hypothesis testing in brackets. Uncorrected p-values in parentheses.
Corrected p-values significance: *** p<0.01, ** p<0.05, * p<0.1

Concerning the health dimension in Table E12, splitting the sample according to education level reveals an increase in desired healthcare prioritisation for natives among college educated respondents.

Table E12: OLS regression of immigration sentiments: health dimension, split sample by education level

	Health dimension			
	Native health care	Health care	Tax burden	Anti immigration
College degree				
Pessimistic info. = 1	0.104**	-0.016	0.014	0.076
	(0.050)	(0.057)	(0.056)	(0.050)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	1,228	1,228	1,228	1,228
R-squared	0.090	0.031	0.061	0.066
No college degree				
Pessimistic info. = 1	0.035	0.035	-0.055	0.032
	(0.048)	(0.047)	(0.052)	(0.058)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	1,728	1,728	1,728	1,728
R-squared	0.063	0.067	0.055	0.065

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention, split by respondent education level (college degree or no college degree). Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share. The regressions control for regional fixed effects.
Robust standard errors are clustered at province level. Robust p-values corrected for multiple hypothesis testing in brackets. Uncorrected p-values in parentheses.
Corrected p-values significance: *** p<0.01, ** p<0.05, * p<0.1

F Further heterogeneities

We now investigate further potential heterogeneous impacts of our pessimistic information interventions. We investigate heterogeneous effects with respect to the Covid-19 incidence at regional level, to the respondents' income and their self-reported levels of exposure to the virus.

F.1 Covid severity

From Table F1 the impact of receiving pessimistic *economic* information observed in Table 3 appears to be driven by respondents in regions in which the epidemic struck relatively harder (notice that the linear terms β_1 for receiving pessimistic information are statistical zeros for all our outcome variables).[48] We do not find any heterogeneity when focusing on the health treatment in Table F2.

Table F1: OLS regression of immigration sentiments: economic dimension

	Economic dimension			
	Native health care	Health care	Tax burden	Anti immigration
Without controls				
Pessimistic info. = 1	0.040	0.003	0.012	0.079
	(0.045)	(0.050)	(0.050)	(0.059)
C19	-2.426	0.855	-13.395*	-3.818
	(7.318)	(6.219)	(7.067)	(6.947)
Pessimistic info. × C19	15.116*	0.917	13.175	7.971
	(8.257)	(9.576)	(9.008)	(9.328)
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.003	0.000	0.002	0.003
With controls				
Pessimistic info. = 1	0.020	-0.002	-0.001	0.067
	(0.044)	(0.048)	(0.048)	(0.057)
C19	15.355	0.961	-23.773	0.357
	(12.844)	(11.869)	(14.669)	(13.464)
Pessimistic info. × C19	20.143**	2.644	17.304*	11.307
	(8.039)	(9.047)	(9.631)	(8.978)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.040	0.041	0.044	0.052

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic economic information intervention interacted with the per capita number of cumulated new Covid-19 cases in the respondents' region. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also controls for regional GDP, regional life expectancy at birth and regional unemployment rate.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table F2: OLS regression of immigration sentiments: health dimension

	Health dimension			
	Native health care	Health care	Tax burden	Anti immigration
Without controls				
Pessimistic info. = 1	0.065	0.031	-0.027	0.085
	(0.052)	(0.048)	(0.065)	(0.052)
C19	-1.403	2.605	-0.704	6.962
	(9.185)	(8.055)	(9.805)	(8.028)
Pessimistic info. × C19	2.960	-4.247	1.061	-6.953
	(13.119)	(9.435)	(16.158)	(13.558)
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.001	0.000	0.000	0.001
With controls				
Pessimistic info. = 1	0.049	0.034	-0.031	0.076
	(0.053)	(0.048)	(0.061)	(0.051)
C19	-10.261	-15.867	-4.128	4.014
	(14.333)	(13.189)	(19.400)	(13.611)
Pessimistic info. × C19	5.666	-6.411	0.820	-5.442
	(12.614)	(9.712)	(14.595)	(13.015)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.059	0.036	0.038	0.060

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention interacted with the per capita number of cumulated new Covid-19 cases in the respondents' region. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also controls for regional GDP, regional life expectancy at birth and regional unemployment rate.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

On the other hand, there seems to be no interaction between our intervention and the regional severity of the epidemic in the health domain.

F.2 Income heterogeneity

Tables F3 and F4 display the results from the analysis of the interaction of our information interventions with the respondents' income tertile (sample distribution). Neither of our economic nor health pessimistic information conditions interacts in any significant way with the respondents' income.

Table F3: OLS regression of immigration sentiments: economic dimension

	Economic dimension			
	Native health care	Health care	Tax burden	Anti immigration
Without controls				
Pessimistic info. = 1	0.064	-0.011	0.091*	0.084
	(0.064)	(0.057)	(0.054)	(0.055)
Income tertile = 2	-0.110*	0.159***	0.073	-0.124**
	(0.056)	(0.058)	(0.057)	(0.051)
Income tertile = 3	-0.129*	0.304***	-0.035	-0.131*
	(0.072)	(0.059)	(0.081)	(0.066)
Pessimistic info. × Income tertile = 2	0.048	0.037	-0.071	0.069
	(0.084)	(0.082)	(0.074)	(0.084)
Pessimistic info. × Income tertile = 3	0.073	0.020	-0.001	0.010
	(0.107)	(0.081)	(0.106)	(0.098)
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.005	0.016	0.002	0.006
With controls				
Pessimistic info. = 1	0.061	-0.017	0.088*	0.086
	(0.061)	(0.058)	(0.052)	(0.054)
Income tertile = 2	-0.135**	0.127**	0.057	-0.107*
	(0.061)	(0.062)	(0.062)	(0.054)
Income tertile = 3	-0.126	0.244***	-0.032	-0.060
	(0.079)	(0.059)	(0.079)	(0.071)
Pessimistic info. × Income tertile = 2	0.059	0.044	-0.063	0.062
	(0.078)	(0.083)	(0.075)	(0.079)
Pessimistic info. × Income tertile = 3	0.081	0.032	0.006	0.012
	(0.100)	(0.084)	(0.102)	(0.090)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.044	0.050	0.047	0.055

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic ecnomic information intervention interacted with the respondents' sample income tertile. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table F4: OLS regression of immigration sentiments: health dimension

	Health dimension			
	Native health care	Health care	Tax burden	Anti immigration
Without controls				
Pessimistic info. = 1	0.036	-0.021	-0.041	0.102*
	(0.050)	(0.059)	(0.059)	(0.056)
Income tertile = 2	-0.096	0.118*	-0.045	-0.100*
	(0.069)	(0.066)	(0.056)	(0.051)
Income tertile = 3	-0.088	0.140*	-0.027	-0.203***
	(0.059)	(0.072)	(0.071)	(0.062)
Pessimistic info. × Income tertile = 2	0.115	0.048	0.122*	-0.049
	(0.085)	(0.092)	(0.072)	(0.084)
Pessimistic info. × Income tertile = 3	0.013	0.055	-0.077	-0.075
	(0.085)	(0.092)	(0.100)	(0.092)
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.003	0.006	0.003	0.011
With controls				
Pessimistic info. = 1	0.045	-0.029	-0.033	0.108**
	(0.051)	(0.059)	(0.054)	(0.051)
Income tertile = 2	-0.124*	0.088	-0.047	-0.082*
	(0.064)	(0.069)	(0.057)	(0.048)
Income tertile = 3	-0.126**	0.084	-0.025	-0.175***
	(0.057)	(0.071)	(0.075)	(0.058)
Pessimistic info. × Income tertile = 2	0.083	0.055	0.087	-0.077
	(0.079)	(0.093)	(0.067)	(0.077)
Pessimistic info. × Income tertile = 3	-0.009	0.068	-0.104	-0.103
	(0.078)	(0.094)	(0.097)	(0.083)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.068	0.044	0.048	0.068

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention interacted with the respondents' sample income tertile. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

F.3 Exposure to the virus

The respondents' degree of exposure to the Covid-19 virus is the result of a principal component analysis of the respondents' answers to whether they were infected themselves, at least one of their family members was, and at least one of their friends, all measured on a scale from 1 to 10. All variables load positively and strongly on a single retained component, as shown in Table F5.

Factor	Eigenvalue	Explained variance	Rotated factor loadings		
			Contracted	Cases in family	Cases among friends
1 (retained)	1.50	0.50	0.78	0.81	0.47
2	0.92	0.30			
3	0.57	0.19			

Table F5: Factor analysis of measures of individual exposure to the virus.

From Tables F6 and F7 receiving pessimistic economic or health information about the situation in Italy does not interact with the respondents' self-reported degree of direct or indirect exposure to the Covid-19 virus.

Table F6: OLS regression of immigration sentiments: economic dimension

	Economic dimension			
	Native health care	Health care	Tax burden	Anti immigration
Without controls				
Pessimistic info. = 1	0.101***	0.009	0.064**	0.111***
	(0.031)	(0.032)	(0.032)	(0.036)
Exposure	-0.013	0.030	0.016	0.010
	(0.025)	(0.020)	(0.023)	(0.021)
Pessimistic info. × Exposure	0.024	0.061*	-0.045	-0.004
	(0.033)	(0.032)	(0.039)	(0.030)
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.003	0.004	0.002	0.003
With controls				
Pessimistic info. = 1	0.104***	0.009	0.067**	0.111***
	(0.031)	(0.030)	(0.032)	(0.035)
Exposure	-0.029	0.026	0.024	0.008
	(0.025)	(0.021)	(0.022)	(0.020)
Pessimistic info. × Exposure	0.018	0.048	-0.043	-0.009
	(0.033)	(0.033)	(0.038)	(0.030)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.044	0.053	0.047	0.055

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic economic information intervention interacted with the respondents' sample income tertile. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table F7: OLS regression of immigration sentiments: health dimension

	Health dimension			
	Native health care	Health care	Tax burden	Anti immigration
Without controls				
Pessimistic info. = 1	0.077**	0.014	-0.023	0.059
	(0.036)	(0.037)	(0.044)	(0.041)
Exposure	0.063***	0.033	0.004	0.028
	(0.020)	(0.028)	(0.025)	(0.023)
Pessimistic info. × Exposure	-0.073*	0.044	-0.020	-0.049
	(0.037)	(0.035)	(0.040)	(0.037)
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.004	0.004	0.000	0.001
With controls				
Pessimistic info. = 1	0.072**	0.008	-0.031	0.054
	(0.035)	(0.038)	(0.040)	(0.038)
Exposure	0.056***	0.034	0.015	0.029
	(0.020)	(0.029)	(0.028)	(0.024)
Pessimistic info. × Exposure	-0.051	0.024	-0.016	-0.026
	(0.035)	(0.036)	(0.040)	(0.036)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.070	0.046	0.047	0.068

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention interacted with the respondents' sample income tertile. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population, immigrant population share . The regression with controls also accounts for regional fixed effects.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

F.4 Change in immigrant population (2014-2019)

Tables F8 and F9 report the output of analyses replicating the results in Tables 5 and 6. The difference is that we here interact our experimental condition indicator with the change in the number of immigrants at provincial level rather than with the stock of immigrants present in the respondent's province. The results are very similar to those reported earlier, with only minor differences, and lead to the same conclusions.

Table F8: OLS regression of immigration sentiments: economic dimension

	Economic dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Without controls				
Pessimistic info. = 1	0.1097***	0.0008	0.0830**	0.1297***
	(0.0368)	(0.0374)	(0.0358)	(0.0379)
Δ Imm. pop. 2014-2019	-0.0006	-0.0005	0.0012	0.0001
	(0.0010)	(0.0007)	(0.0008)	(0.0009)
Pessimistic info. ×Δ Imm. pop. 2014-2019	-0.0013	0.0006	-0.0019	-0.0022
	(0.0012)	(0.0012)	(0.0012)	(0.0015)
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.0032	0.0001	0.0015	0.0038
With controls				
Pessimistic info. = 1	0.1157***	0.0023	0.0858**	0.1297***
	(0.0377)	(0.0352)	(0.0353)	(0.0377)
Δ Imm. pop. 2014-2019	-0.0052**	-0.0002	0.0001	-0.0032*
	(0.0023)	(0.0014)	(0.0014)	(0.0017)
Pessimistic info. ×Δ Imm. pop. 2014-2019	-0.0014	0.0006	-0.0020	-0.0021
	(0.0012)	(0.0012)	(0.0012)	(0.0014)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.0460	0.0502	0.0468	0.0563
With controls and region GDP × Pess.info interaction				
Pessimistic info. = 1	-0.1007	-0.0644	-0.0943	0.0308
	(0.1088)	(0.1041)	(0.1182)	(0.1315)
Δ Imm. pop. 2014-2019	-0.0050**	-0.0002	0.0002	-0.0031*
	(0.0022)	(0.0014)	(0.0014)	(0.0017)
Pessimistic info. ×Δ Imm. pop. 2014-2019	-0.0017*	0.0005	-0.0023**	-0.0023*
	(0.0010)	(0.0012)	(0.0011)	(0.0013)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Pess. info × region GDP p.c.	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	3,003	3,003	3,003	3,003
R-squared	0.0468	0.0503	0.0475	0.0565

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic economic information intervention interacted with the change in the immigrant population in the respondents' province of residence between 2014 and 2019. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population. The regressions with controls also accounts for regional fixed effects. The third panel controls for the interaction between per capita regional GDP and the indicator for having received pessimistic information.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table F9: OLS regression of immigration sentiments: health dimension

	Health dimension			
	Native health care	Health care	Tax burden	Anti-immigration
Without controls				
Pessimistic info. = 1	0.0978**	0.0130	0.0155	0.0802*
	(0.0392)	(0.0441)	(0.0416)	(0.0418)
Δ Imm. pop. 2014-2019	0.0005	-0.0002	0.0008	-0.0013
	(0.0012)	(0.0010)	(0.0013)	(0.0013)
Pessimistic info. ×Δ Imm. pop. 2014-2019	-0.0023	0.0001	-0.0042***	-0.0024
	(0.0017)	(0.0010)	(0.0016)	(0.0018)
Observations	2,956	2,956	2,956	2,956
R-squared	0.0021	0.0001	0.0022	0.0036
With controls				
Pessimistic info. = 1	0.0883**	0.0021	-0.0018	0.0708*
	(0.0389)	(0.0449)	(0.0387)	(0.0395)
Δ Imm. pop. 2014-2019	-0.0012	-0.0064***	0.0016	-0.0035**
	(0.0014)	(0.0012)	(0.0021)	(0.0017)
Pessimistic info. ×Δ Imm. pop. 2014-2019	-0.0019	0.0006	-0.0031**	-0.0018
	(0.0015)	(0.0010)	(0.0015)	(0.0017)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.0686	0.0464	0.0475	0.0693
With controls and region GDP × Pess.info interaction				
Pessimistic info. = 1	-0.0000	0.0593	-0.0021	0.1053
	(0.1372)	(0.1245)	(0.1467)	(0.1335)
Δ Imm. pop. 2014-2019	-0.0012	-0.0064***	0.0016	-0.0036**
	(0.0014)	(0.0012)	(0.0021)	(0.0017)
Pessimistic info. ×Δ Imm. pop. 2014-2019	-0.0020	0.0007	-0.0031**	-0.0018
	(0.0015)	(0.0010)	(0.0016)	(0.0016)
Omitted controls:				
- Individual	✓	✓	✓	✓
- Provincial	✓	✓	✓	✓
- Pess. info × region GDP p.c.	✓	✓	✓	✓
- Constant	✓	✓	✓	✓
Observations	2,956	2,956	2,956	2,956
R-squared	0.0688	0.0465	0.0475	0.0693

The table displays the results from OLS regressions of our immigration sentiment and tax burden outcomes on our pessimistic health information intervention interacted with the share represented by the change in the immigrant population in the respondents' province of residence between 2014 and 2019. Omitted individual controls: employment status, college education, Italian born, gender (female=1), age classes, family size, sample income tertile, marital status (single=1). Omitted provincial controls: population. The regressions with controls also account for regional fixed effects. The third panel controls for the interaction between per capita regional GDP and the indicator for having received pessimistic information.
Robust standard errors, clustered at province level, in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

G Multiple hypothesis testing

We now report p-values for the effect of receiving pessimistic information in the economic and health dimension presented in Section 7, corrected for multiple hypothesis testing using the most recent method developed and discussed by List et al. (2019) and implemented by Barsbai et al. (2020).

We present two sets of corrected p-values, one for each of the economic and health dimensions in Tables G10 and G11 respectively, alongside the uncorrected p-values for comparison. The uncorrected p-values can be directly interpreted when interest is in the impact of our intervention on a specific outcome (e.g. the effect of pessimist economic information on general immigration sentiment).

Immediately next to the uncorrected p-values, we report the p-values corrected for the simultaneous estimation of all the equations which can be estimated using all the outcome variables we elicited in the survey (there are 40 of these equations). This is the most restrictive specification we test for. Notice that the two main outcome variables of this paper survive in presence of this very demanding correction in the economic dimension of our investigation, confirming the overall validity of these results.

Next, not all the variables we elicited in the outcome were intended as outcome variables. Rather, they were included to further gain insight into the mechanisms at play, with the additional benefit of obfuscating the link between our outcomes of interest and the experimental interventions. In the last columns in the tables we test for simultaneous estimations but restricting to the outcome variables which we have discussed in Section 7. In the third column we include all our outcome variables and add a battery of variables measuring demand for various types of tax financed welfare intervention and perceptions of one's own tax burden, which were not discussed in this article. After performing such correction, our core results on immigration sentiment in the economic dimension remain well within conventional significance levels in the economic dimension (Table G10). The corrected p-values from this column, our favourite correction, are those reported in Tables 3 and 4 for the models including covariates.

In the last four columns, we report the p-values corrected for the simultaneous estimation of multiple equations within each family of outcomes measuring similar attitudes, i.e. immigration sentiments, perception of the tax burden, demand for tax financed welfare support and voting intentions. These corrections account for the potential correlation between outcomes (hence, between hypotheses) arising from the fact that a group of dependent variables measures analogous expressions of a same underlying attitude. In our case, two variables measure different expressions of immigration attitudes, two measure different expressions of tax burden perceptions, and so on. These p-values are relevant for those with an interest in the broader outcome categories (e.g., in keeping with the previous example, the impact of the pessimistic economic information on immigration sentiment). Our core estimates on immigration sentiment and tax burden perceptions survive these corrections.

Table G10: Correction for multiple hypotheses: economic dimension

	Uncorrected p-values	**Corrected p-values**					
Too many immigrants	.0023***	0.065*	.017**	.002***			
Health ex. to natives	.0019***	0.056*	.016**	.004***			
General tax too high	.0351**	0.578	.218		.065*		
Self tax too high	.6366	>0.999	.927		.637		
+Taxes - Poverty	.4421	0.999	.903			.706	
+Taxes + Health exp.	.7735	0.999	.773			.773	
+Taxes + Unemployed welf.	.4163	0.999	.910			.750	
+Taxes + Pensions	.7372	0.999	.885			.884	
Incumbent voting	.606	>0.999	.960				.606
Populist voting	.0729*	0.699	.272				.117
Anti-immigration voting	.0849*	0.798	.339				.139
All other outcomes		✓					

Asterisks denote conventional significance levels.

Table G11: Correction for multiple hypotheses: health dimension

	Uncorrected p-values	**Corrected p-values**					
Too many immigrants	.1741	0.977	.618	.1741			
Health ex. to natives	.0583*	0.750	.361	.091*			
General tax too high	.4927	>0.999	.908		.493		
Self tax too high	.1135	0.920	.509		.191		
+Taxes - Poverty	.6585	>0.999	.917			.917	
+Taxes + Health exp.	.8211	>0.999	.947			.947	
+Taxes + Unemployed welf.	.8353	>0.999	.835			.835	
+Taxes + Pensions	.5895	>0.999	.903			.903	
Incumbent voting	.109	0.919	.544				.235
Populist voting	.444	0.992	.687				.296
Anti-immigration voting	.9808	>0.999	.920				.444
All other outcomes		✓					

Asterisks denote conventional significance levels.

Notes

[48]The heterogeneous effects here uncovered with respect to Covid-19 incidence are structurally confounded with potential heterogeneous heterogeneous effects with respect to regional GDP. In our sample, regional GDP per capita and cumulated regional Covid-19 cases per capita are extremely highly correlated: The northern and richer Italian regions were much more heavily affected by the epidemic (Spearman rank correlation coefficient $\rho = 0.85, p < 0.001$). Interacting our interventions with regional GDP yields substantially identical results.