

Risk exposure and well-being: who suffers most and from which risks?

Abstract

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How much do the world's inhabitants worry about the major risks they face, and how does this affect their subjective well-being? We address these questions through two global surveys: the *Gallup World Poll* and the *World Risk Poll*.

We show that the experience of risk, worry and subjective well-being are inextricably linked. Climate risk is the most worrisome, followed by road risk, natural disasters, and violent crime. Unlike other risks, concern about climate change does not depend on a country's income level: people in wealthy countries say they are almost as concerned about this risk as people in poor countries, which are more affected. In addition, for the same level of risk exposure, people living in low-income countries are more resilient, that is, the experience of risk affects their subjective well-being less. Finally, the experience of one risk has a contagion effect on anxiety relating to all other risks.

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Which risk worries the world's population the most?

In the Gallup survey, individuals answer the following question:

In general, how worried are you that each of the following things could cause you serious harm? Are you very worried, somewhat worried, or not worried? 1) The food you eat, 2) The water you drink, 3) Violent crime, 4) Severe weather events, such as floods or violent storms, 5) Being in a traffic or roadside accident, 6) Mental health issues, 7) The work you do

From Figure 1, we see that climate risk is different from the others: all but those who "don't know" declare that they are very concerned. This polarized distribution of responses undoubtedly reflects the spread of climate risk awareness in recent years, particularly because of the many meteorological upsets.

Less worrying on average, the risks of access to water, food poisoning, mental health and accidents in the workplace are nevertheless far from insignificant: nearly 850 million people are said to suffer from malnutrition, and 9 million die from it every year. Lack of access to drinking water is responsible for the deaths of 1.2 million people, and more than 2 billion people live in countries where access to drinking water is limited. Finally, according to the World Labour Organization, no fewer than 2.3 million people die from work-related accidents or illnesses, and 500 million are affected annually.

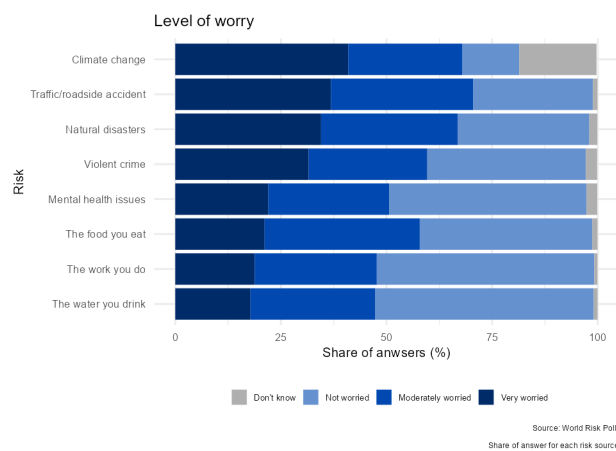


Figure 1

...um-high, medium-low and low. In 2022, a country was considered high-income if its average per capita income was at least \$13205 per year; the maximum income to be classified as low-income was \$1085. <https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2022-2023>.

² See Abeygunawardena et al. *Poverty and climate change : reducing the vulnerability of the poor through adaptation*. Washington, D.C. : World Bank Group.

³ "In the last two years, have you suffered any prejudice concerning: [...]" answers: Yes/No.

Concern declines with the country's level of wealth

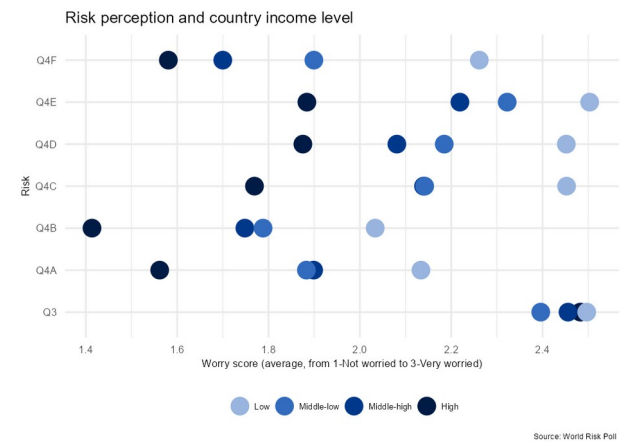


Figure 2

Does the degree of concern about a risk depend on a country's level of wealth? To answer this question, we use the country income categories established by the World Bank¹ and calculate the average degree of concern per country category. It appears that the degree of concern for almost all risks decreases with a country's per capita income (Figure 2). It is in low-income countries that people experience the greatest difficulties in accessing drinking water, healthy food, safe working conditions and reliable road infrastructures. These countries are also the most affected by major climatic phenomena.

However, a country's income level has little influence on its concern about climate change. People in wealthy countries are about as concerned about this risk as people in poor countries, even though it is the latter group that are more affected by climate change.²

Exposure to one risk increases concern about another

We verify that the people who are most concerned about all the risks, and who are in the most disadvantaged countries, are indeed the most affected by the different risks.³ Figure 3 shows the proportion of people who say they have experienced a risk in the last two years. The countries of Africa, Central and South America, Central and Western Asia are home to the populations most severely affected by all types of risk.

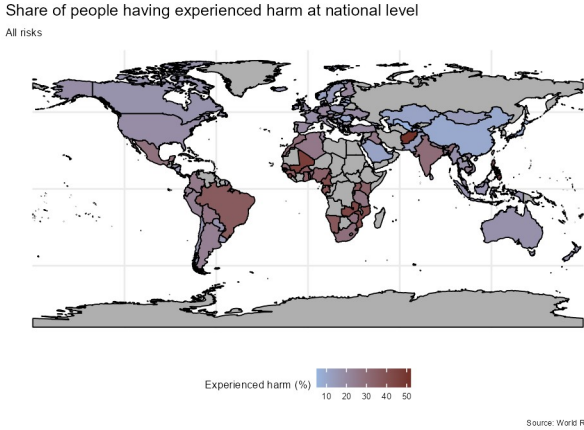


Figure 3

The scatterplot in Figure 4 shows the relationship between the proportion of people in each country who say they are "very concerned" about a risk, and the

link between experience of a particular type of risk and the degree of concern about it. People who have been personally exposed to one of these risks tend to be more concerned about the threat. The blue line represents the typical relationship between these two quantities, for each risk. One can see that, on average, a certain proportion of the population is still concerned, even when, on average, the country's inhabitants have not experienced the risk concerned.

Note that there is a high proportion of people worried about mental health problems in Africa, and conversely, a low percentage in Europe despite the prevalence of these problems, which may be explained by better care of these pathologies by European health-care systems. In Latin America, concern about violent crime and food and water problems is generally highest.

Worry and experiences of harm

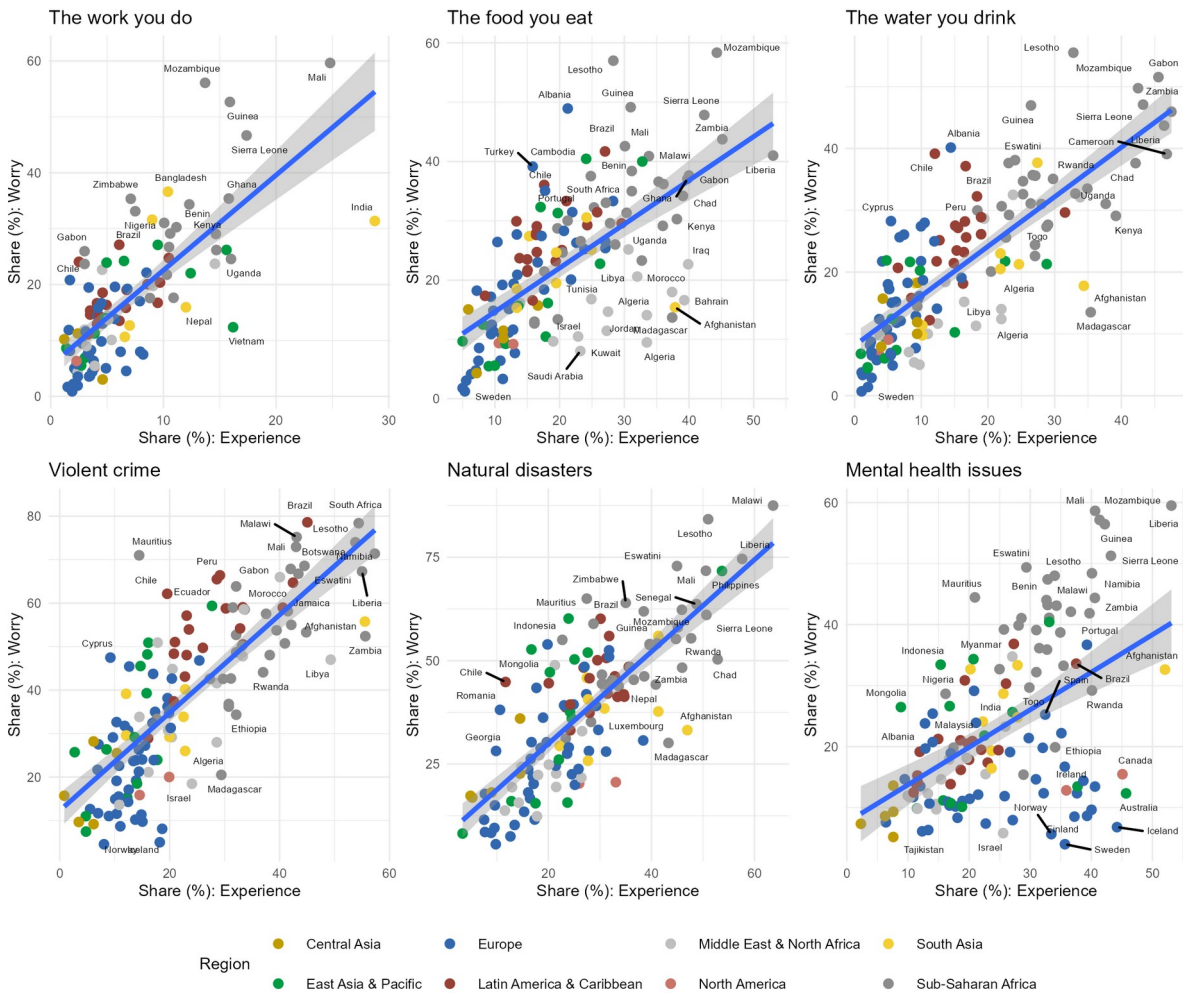


Figure 4 proportion of people who say they or their loved ones have been affected by a risk.⁴ There is a very strong

Given the same experience, are some people more concerned about risk? Econometric analysis allows us to

⁴ In the LRF data, the response options concerning the experience of a risk were modified from one wave to the next. In 2019 individuals only had the option of answering either yes or no, in 2021 the response options were as follows: 1) you have personally experienced this risk 2) you know someone who has 3) both 4) no. Summing up re-

control for the effect of age, gender, income and education levels, employment status, type of residence and number of children in the household. The previous results remain unchanged: People who say they have personally experienced a certain risk are more concerned about it. For example, having experienced food-related harm in the last two years increases the corresponding degree of concern by around 20%.

The effect of experience is particularly strong for mental health problems (+40%). This risk, which is not a major concern for the general population, becomes the most worrying for those who have experienced it.

A heightened state of vigilance

Having experienced one of the risks increases the general state of vigilance, i.e. anxiety relating to all the other risks. This is illustrated in Figure 5, which shows the effect of having been confronted with each particular risk on the concern about the others, even when they are of a completely different nature.

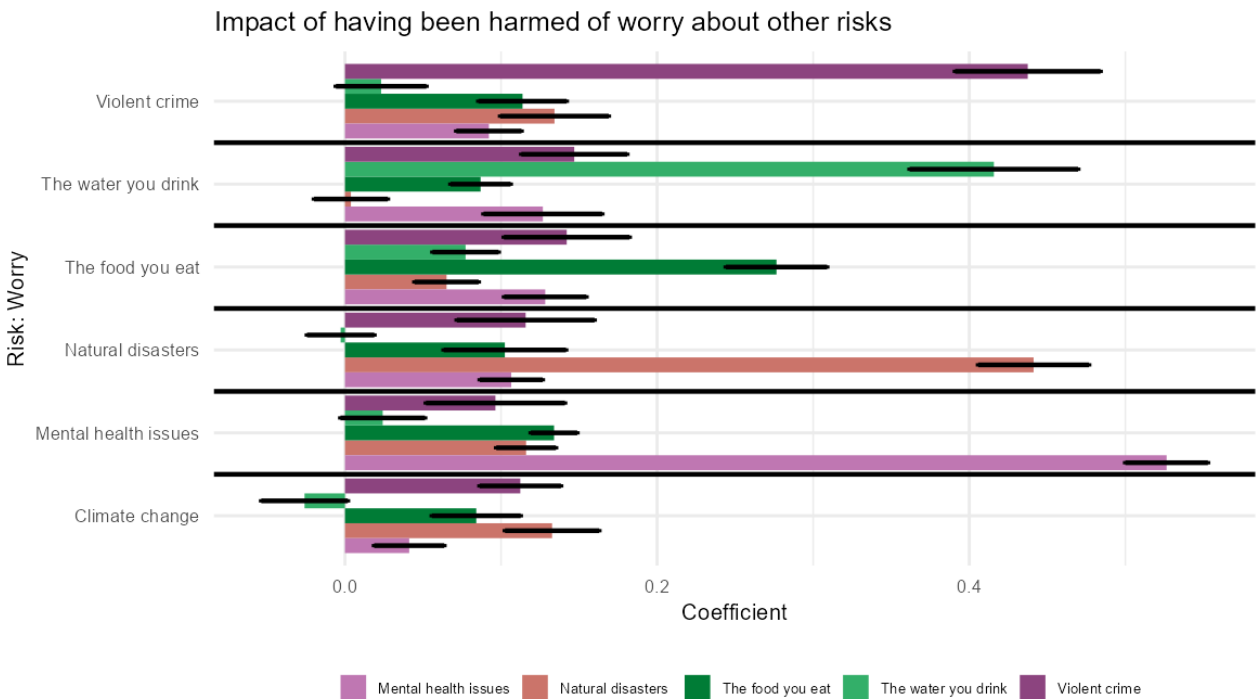
On this graph, each bar tells us the effect of experiencing a risk on concern for the same or another risk. For example, the purple bar on the first line tells us that experiencing a mental health risk increases concern

for mental health by around 0.5 (on a scale of 1 to 3). Similarly, the purple bar below tells us that experiencing a mental health risk increases concern for water-related risk by around 0.13, regardless of whether or not you've experienced a water-related risk (controlling for this variable).

It is possible that the experience of a risk creates a general state of stress or anxiety that spreads to concern about all types of risk. To control for this general state of anxiety, we introduce the individual's level of subjective well-being into the estimation. The results remain essentially the same: experience of one risk subsequently leads to a heightened state of vigilance with regard to all other hazards.

Risk and subjective well-being

The Gallup data contain a number of indicators of subjective well-being, including the most classic: measures of satisfaction with current life (scale from 0 to 10), anticipated future satisfaction, and emotional well-being. The latter correspond to the following questions: "How often did you feel the following emotion during yesterday? Joy, sadness, anger, stress, worry, enjoyment, smiling" (possible answers: Yes, No, Refused, Don't know). Being concerned about a risk is



Source: Gallup World Poll et World Risk Poll

Figure 5

sponses 1 to 3 for 2021, we find proportions of risk experience similar to the "Yes" response (1) in 2019, hence our choice to group these responses under a single heading.

associated with a lower level of subjective well-being, as shown in Figure 6

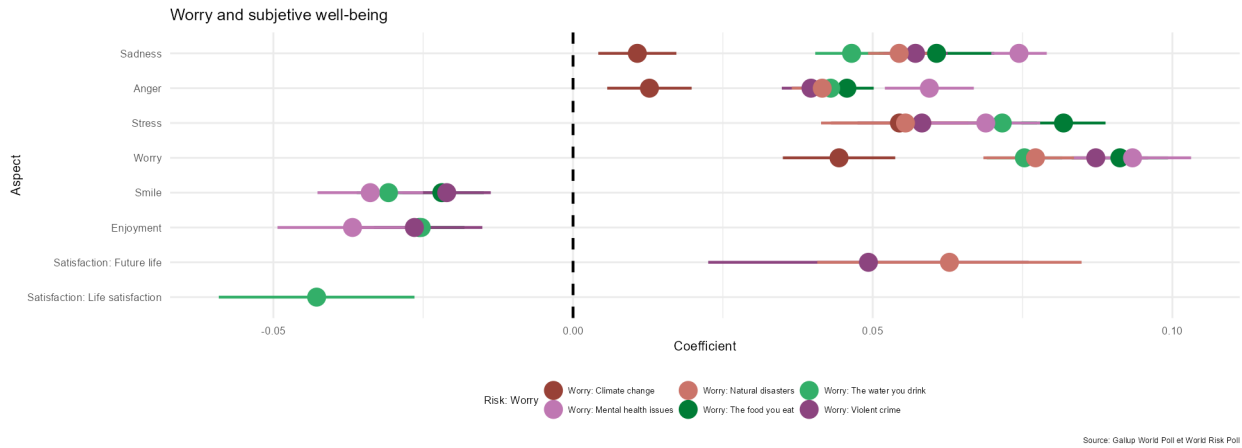


Figure 6

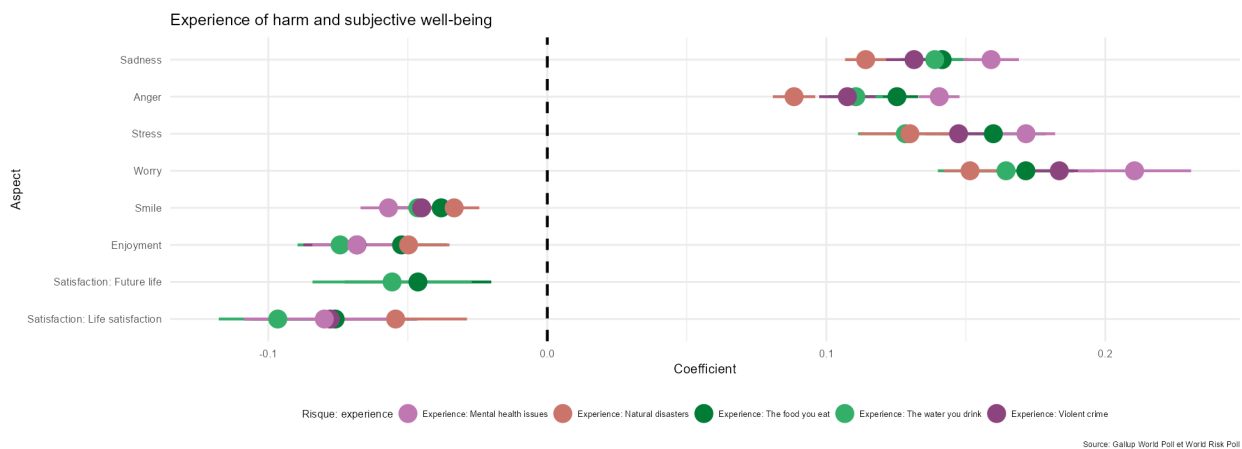


Figure 7

Each point gives the change in the relevant well-being measure when the worry score increases by one point (the latter takes values between 1 and 3, where 1 means that the person is not concerned about the risk factor mentioned, and 3 that they are very concerned). The first line of the graph shows that all the areas mentioned are sources of sadness. All measures of well-being are negatively affected by worrying about any of the risks mentioned: the anger and stress metrics increase, while the joy and smile metrics decrease. Worry about mental health has the greatest impact on subjective well-being, while worry about climate change is less of a determinant. These relationships remain identical when we control for the fact of having experienced the risks concerned; they therefore hold for a given experience level.

The same relationships emerge when we control for the effect of conventional sociodemographic variables (age, income, etc.), as shown in Figure 7.

Differences between countries

Beyond the average effect, does exposure to a risk have a greater or lesser impact on well-being, depending on a country's average income? Here again, we distin-

guish between high-, middle- and low-income countries, according to the World Bank classification. Figures 8 and 9 show that the subjective well-being of people in poorer countries is more affected by risk-related concerns, particularly feelings of sadness. The opposite is true of rich countries. In poor countries, concern about food has the greatest relative influence

On the other hand, people living in high-income countries are relatively less affected by being worried about certain risks, with the exception of anxiety about violent crime, which reduces their life satisfaction to a greater extent (Figure 9).

In short, risk experience, worry and subjective well-being are inextricably linked. In addition, the experience of one risk has a contagion effect on anxiety about all other risks. Inhabitants of low-income countries are more affected by all risks. However, at a given level of exposure, they are less concerned and less affected by certain sources of risk. Although they experience more anger and stress in the face of perceived risks, they are also more likely to report positive emotions, and to report above-average anticipated life satisfaction.

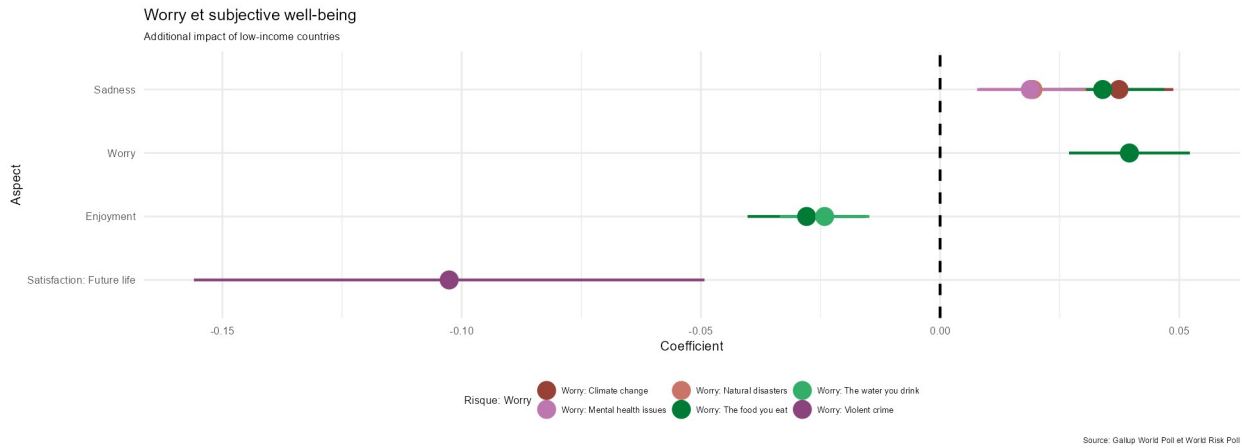


Figure 8

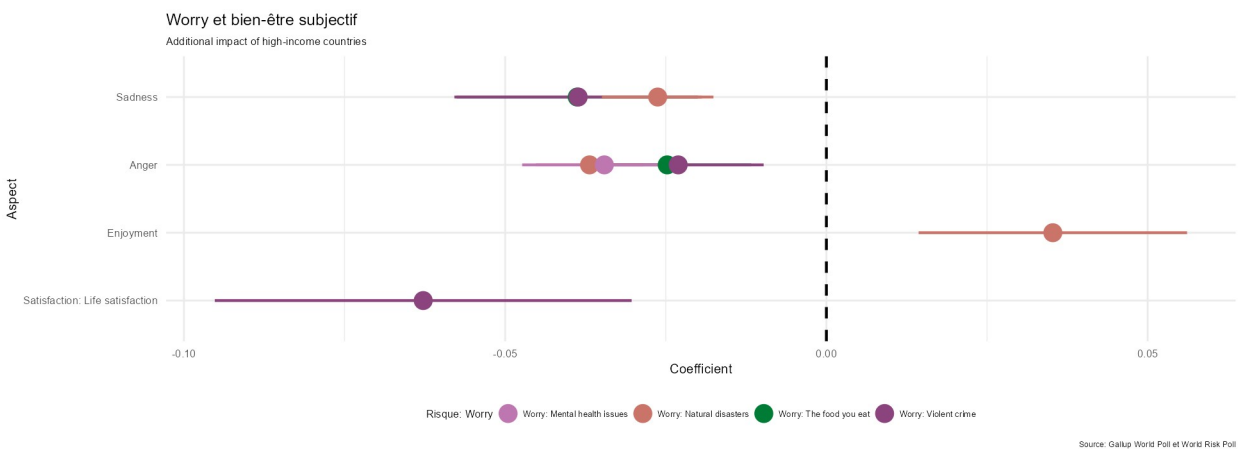


Figure 9

Data

The Gallup World Poll is an annual survey carried out since 2005 by the Gallup company on a representative sample of the population in almost 140 countries. Its aim is to provide information on the feelings, opinions and living conditions of people around the world. We are interested here in the 2019 and 2021 waves, for comparison with the World Risk Poll data. In 2019, the Lloyd's Register Foundation launched the World Risk Poll, partly based on the Gallup World Poll, to better understand the concerns and risks to which people are exposed. In 2019 and 2021, the World Risk Poll surveyed nearly 280,000 people about their exposure and concerns regarding eight sources of risk: climate risk, food and water poisoning risk, violent crime risk, natural disaster risk, road accident risk, mental health risk and workplace accident risk.

⁵ Figures 8 and 9 show the additional effect of living in a rich (or poor) country compared to the effect measured in middle-income countries.

CEPREMAP

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